Vital Strategies

Strengthening the Tobacco Cessation Ecosystem

Strategies for Improving Access, Use, Success, Synergy and Impact at the National, Subnational and Organizational Levels

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i. Acknowledgments and Contributors

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ii. Abbreviations and Acronyms

ACT	Acceptance and commitment therapy
AI	Artificial intelligence
APP	Application
ASHA	Accredited social health activists (India)
BA	Brief advice
AAR	Ask, Advise, Refer
ABC	Ask, Brief Advice, Cessation support
5As	Ask, Assess, Advise, Assist, Arrange follow-up
BTI	Brief tobacco intervention (BA variation)
CBT	Cognitive-behavioral therapy
CDC	U.S. Centers for Disease Control and Prevention
CME	Continuing medical education
DOT	Directly observed treatment (tuberculosis centers)
EHR	Electronic health record
FCTC	Framework Convention on Tobacco Control
LMICs	Low- and middle-income countries
MPOWER	Monitor, Protect, Offer help, Warn, Enforce, Raise taxes
NCI	National Cancer Institute (U.S.)
NGOs	Nongovernmental organizations
NRT	Nicotine replacement therapy
OTC	Over the counter
PC	Practical counseling
QL	Quitline
RCT	Randomized controlled trial
SCT	Social cognitive therapy
SGR	Surgeon general's report (US)
TCE	Tobacco cessation ecosystem
TI	Tobacco industry
WHO	World Health Organization

iii. Executive Summary and Key Concepts

Background

Tobacco use remains one of the most preventable drivers of death and disease worldwide, causing more than 7 million deaths and costing US$1.4 trillion annually. More than 60% of tobacco users globally want to quit, yet 70% lack access to cessation services. Help is often fragmented and hard to access, reaching only a small fraction of those in need. An ecosystem approach treats cessation not as a single program or clinic but as a coordinated system aligning policies, clinical practices, population services, financing and measurement. The goal is to make it easier for all people to try to quit, with accessible, widely available support that increases success.

Tobacco Cessation Ecosystem Model and Elements

The tobacco cessation ecosystem (TCE) model integrates resource management, stakeholder involvement, monitoring and health care delivery system improvement to increase the accessibility, affordability and effectiveness of tobacco cessation interventions. The TCE approach fosters interactions among cessation services, including quitlines, digital cessation (such as apps and texting programs), in-person counseling, brief advice in health care settings, and pharmacotherapies. When these services interact synergistically, their impact is multiplied.

Measures such as comprehensive smoke-free laws, higher excise taxes, prominent health warnings and anti-tobacco media reduce use and generate waves of quit attempts. These attempts translate into lasting quits more reliably when cessation services are visible, trusted and available. Tobacco users are more likely to quit when they receive repeated messages encouraging cessation from multiple sources. To succeed, programs need consistent funding, education, and workforce training, leadership messaging and support, and integration into all components of health care systems.

Maximizing Impact Through Population-Level Cessation Interventions

Impactful cessation improvements focus first on interventions that can reach a large fraction of all tobacco users. WHO's investment case demonstrates a strong return on investment for these population-level cessation interventions. Policies that make the overall environment more conducive to cessation emphasize systematic advice to quit and offer evidence-based assistance to all tobacco users in health care and community settings.

In resource-constrained settings, priorities include scaling brief advice, establishing or strengthening toll-free quitline services, launching and maintaining low-cost mCessation/text programs, and delivering ongoing media messages that encourage quitting and normalize seeking help—augmented by providing targeted access to affordable medications. In health systems with moderate health care capacity but limited public-health budgets, the emphasis includes the above priorities plus making cessation a core clinical service. This includes guaranteed medication coverage, counseling embedded within primary care, routine referrals to quitlines and digital tools, and clear, consistent messaging from the leadership of ministries of health, health care professional organizations, payers, hospitals and clinics. Messaging can emphasize that tobacco treatment is as fundamental as immunizations and hypertension control to good medical practice. In well-resourced systems, in addition to the priorities noted for low- and middle-resource settings, the focus can include optimizing referrals, integrating

cessation in hospitals, specialty clinics, antenatal care, and pharmacies, and using data that helps expand outreach in high-burden communities. Specialized cessation clinics can provide more support for heavily addicted patients but are resource intensive. If developed, they should complement rather than substitute for broader interventions.

Shared Responsibilities for a Strong Tobacco Cessation Ecosystem

Each actor in the TCE plays a key role. Government and other payers set standards, purchase services and medicines, and ensure equitable access. Health care systems provide routine treatment, appropriate referrals, and a clinical leadership voice that normalizes cessation's place as part of standard care. Pharmacies expand low-barrier access points for advice and pharmacotherapy. NGOs, health care professional associations, and academic partners deliver contracted services, help train the workforce, and evaluate, innovate, and advocate. Employers and community organizations amplify benefits and connect members to help.

Governments can also foster collaboration among health care providers and institutions, including providing or requiring stable funding for cessation services through medical insurance or subsidy, and enacting policies and sponsoring programs that promote cessation initiatives, such as smoke-free laws and anti-tobacco media campaigns.

Finally, tobacco companies use marketing strategies and lobbying to maintain addiction and hinder cessation efforts. Recently, they have begun promoting "tobacco harm reduction" products, such as e-cigarettes and heated tobacco products, as an alternative to quitting all commercial tobacco and nicotine products. However, these products still pose significant health risks and, if not properly regulated, could further entrench nicotine addiction by serving as alternate pathways to initiating and sustaining nicotine and tobacco use. Policymakers must remain vigilant against the tobacco industry's tactics, as required by Article 5.3 of the WHO FCTC. Reliable access to evidence-based cessation support helps minimize tobacco company influence.

Conclusion

Disparities in health care access, higher exposure to tobacco marketing, lack of cessation treatment training and support for health professionals, and fewer cessation services for low-income and minority groups can exacerbate the burden of tobacco use. Strengthening the tobacco cessation ecosystem by improving integration, expanding access to services, and addressing barriers to cessation can result in a more effective and sustainable reduction in tobacco use globally. This will lead to better public health outcomes, reduce the economic burden of tobacco-related diseases, and assure a healthier future for all communities.

The core approach is to: **"consistently address tobacco use and dependence in all patients as a standard of care, providing evidence-based support."** Tobacco treatment includes routine screening, diagnosis, advice to quit, and assistance or referral with follow-up in all health care settings. This approach is key to the effective prevention and management of other important diseases and health conditions.

Key Concepts and Implications of the Tobacco Cessation Ecosystem Perspective

- Increasing the delivery of brief advice, counseling support and cessation medications increases cessation success.
- The population-level impact of cessation programs and policies should be a central focus in implementation and evaluation.
- Increasing impact requires expanding the reach of effective cessation treatments.
- Improving how all cessation ecosystem parts work together results in greater impact than solely focusing on individual programs.
- Reliable financing of cessation services with consistent leadership messaging is critical to long-term success.
- Systematic health worker training with ongoing support is necessary for adoption.
- Tobacco industry messaging, influence, and products hinder cessation.
- Implementing tobacco control measures—including smoke-free laws, price increases, health warnings and anti-tobacco media—supports cessation success.

1.

Introduction, background and significance

Tobacco use causes more than 7 million deaths each year, straining health systems and economies, particularly in low- and middle-income countries. There are 1.25 billion tobacco users, yet 70% still lack access to effective cessation support. A tobacco cessation ecosystem (TCE) approach integrates diverse services and policies to expand reach, strengthen health systems and accelerate reductions in tobacco use.

Tobacco use remains one of the world's most pressing public health challenges, contributing to more than 7 million deaths each year—more than any other preventable risk factor. Approximately 1.25 billion people use tobacco globally, 80% of them living in low- and middle-income countries (LMICs).[1,2] The harmful impacts of tobacco extend beyond mortality, encompassing extensive morbidity in the form of cardiovascular disease, respiratory illnesses and multiple cancers. Moreover, environmental and economic burdens compound the crisis: The cultivation and processing of tobacco depletes valuable land and water resources,[3] while health care systems strain under escalating tobacco-related treatment costs.[4] Annual global expenditures related to health care and productivity losses exceed US$1.4 trillion.[5] WHO has underscored the urgent need to protect populations from the harms of tobacco by emphasizing proven, cost-effective measures to reduce tobacco use, referred to as the "MPOWER" model, which includes:

Monitoring tobacco use and policies
Protecting from tobacco smoke through smoke-free policies
Offering help to quit (cessation support)
Warning about the dangers of tobacco use (graphic warnings and media)
Enforcing bans on tobacco advertising and promotion
Raising taxes on tobacco[6]

Article 14 of the WHO Framework Convention on Tobacco Control (WHO FCTC)—an international treaty ratified by 183 Parties as of 2025—emphasizes the essential role of supporting tobacco users' efforts to quit as part of a comprehensive approach to tobacco control. The Article emphasizes that encouraging and enabling quitting is highly cost-effective and ethically imperative.[7]

Tobacco use has declined globally from 22.3% in 2007 to 16.4% in 2023, in part due to the implementation of WHO MPOWER[8] measures. As a result, there are 300 million fewer smokers today than if prevalence had remained the same. However, tobacco use remains high in certain regions. The WHO Southeast Asia Region has the highest percentage of tobacco users at 26.5%, followed closely by the European Region at 25.3%.[1]

More than 60% of the world's 1.25 billion adult tobacco users want to quit, yet approximately 70% lack access to comprehensive cessation services, particularly in low- and middle-income countries (LMICs). While 83% of countries offer some level of cessation programs, just 31 countries report that they provide services at a best-practice level. This gap is in part due to health system constraints, including limited financial and human resources, inadequate capacity to deliver cessation support, policy-related barriers, and lack of prioritization. Current cessation programs often operate in isolation—unpublicized, underutilized, uncoordinated, and sometimes skewed toward resource-intensive models such as specialty cessation clinics, which may be unable to reach the broader population effectively. Access to affordable medications and intensive counseling is limited, and many countries fail to integrate cessation interventions into routine health care. These fragmented efforts fail to integrate and scale treatment-oriented cessation support sufficiently to reduce tobacco use at the population level.[9]

A tobacco cessation ecosystem (TCE) approach integrates diverse services such as quitlines, pharmacotherapy, brief advice, intensive counseling, and digital tools. It aligns and integrates services across diverse clinical and public health systems and ensures broad, equitable access. This approach offers a helpful framework for addressing challenges more effectively and sustainably.

While the collective efforts of many countries, including implementation of the evidence-based MPOWER measures, have helped to significantly reduce global smoking rates, further investment and commitment to comprehensive cessation services are needed to help sustain progress. Article 14 of the WHO FCTC calls for establishing effective infrastructure for cessation, including evidence-based national guidelines, training for health care professionals, public education, and widespread availability of affordable treatments, including accessible pharmacotherapies and counseling support. Such measures are particularly critical in low- and middle-income countries, where most smokers reside and where cessation resources remain scarce. By implementing Article 14 alongside broader WHO FCTC provisions, countries can foster sustainable cessation programs that contribute to significant reductions in tobacco use, disease burden and health care costs.[10]

Multiple guidelines and protocols have been developed based on strong evidence for the effectiveness of specific components of cessation services, including the recent adoption of the WHO Clinical Treatment Guideline for Tobacco Cessation.[9,11] These have addressed how to provide specific services such as quitlines, in-person counseling, brief advice and pharmacotherapies. However, less guidance has been provided regarding how to build a cohesive, integrated, efficient multicomponent system of cessation services that strongly supports the tobacco user in quitting. This document uses the term "tobacco cessation ecosystem" (TCE) to describe the roles and relationships between individual tobacco users, different cessation support services, and institutions. The objective of examining these relationships is to help determine how the different elements can most effectively provide

robust, easily accessible support to tobacco users. The interrelatedness of the TCE and the broader mission and infrastructure of health care systems and tobacco control policy initiatives is also important to consider.

The mix and interaction between different cessation services is important because the combined impact of multiple programs, services and institutions can markedly influence whether people start, continue or quit tobacco use at the individual, institutional and societal level far more than any single, isolated program, service or institution. A key insight based on research is that tobacco users are more likely to quit if they receive repeated messages from multiple sources encouraging cessation.[11,12] Disregarding an ecosystem perspective and focusing only on individual programs runs the risk of failing to motivate, attract and effectively treat tobacco users at levels high enough to reduce tobacco-use prevalence population-wide. Even impactful, multicomponent cessation programs are unlikely to be maintained without institutional support, including ongoing funding, resources, and integration into existing health care or community systems.

Whether individuals, clinicians and institutions provide impactful cessation support is influenced by multiple factors. These include government and private-sector policies that support accessibility, affordability and promotion of cessation services (such as making cessation treatment a priority, removing cost barriers, publicizing cessation resources through anti-tobacco campaigns, developing cessation services, and monitoring quality). Tobacco industry practices and government regulation (or nonregulation), also profoundly affect the cessation ecosystem (for instance through slick youth-oriented marketing, strategic pricing, widespread availability, and making tobacco products addictive and appealing).

Understanding the characteristics of specific elements of cessation support (such as brief advice, counseling delivered in person and remotely, and medication) is important, just as understanding a biological ecosystem requires understanding each organism's contributions and requirements. However, a reductionist policy-planning approach that focuses solely on maximizing a single cessation service element misses the opportunity to create powerful, synergistic cessation effects. An ecosystem perspective may help a country or health system tailor what cessation elements receive priority based on their characteristics. For example, countries with limited resource availability and low interest in quitting may prioritize coordinated, cost-effective cessation interventions that stimulate quit attempts and reach large numbers of tobacco users. This could take the form of brief advice and media campaigns tagged with quitline or digital resources that focus less on higher-intensity interventions that aim to maximize individual success. Case examples of various approaches are provided throughout the text and the annexes.

The TCE model highlights the interplay between cessation services, users and the broader environment by identifying key elements that drive success. Just as biodiversity and ample rain, sunlight and nutrients strengthen natural ecosystems, diverse and well-integrated cessation services with adequate financial resources, trained personnel, infrastructure and multi-provider engagement are more resilient and have greater impact. Health care systems can empower and set TCE expectations for various providers (e.g., pharmacists, nurses, physicians, dentists, community health workers and counselors) and for institutions (primary and specialty care clinics, hospitals, quitlines, digital programs, media, etc.). The importance of addressing tobacco use systematically should be emphasized, reinforcing that integration of cessation efforts into health care delivery creates more sustainable and effective interventions than those relying solely on single-session training of individual physicians.

1.1 Purpose, Content and Limitations of Report

Purpose: This report describes how evidence-based cessation services (including brief advice, pharmacotherapy, counseling, and remote support via quitlines and digital services) work best by integrating and coordinating with each other and with other elements of health care, as well as with tobacco control policies and initiatives.

Content: The characteristics of larger health care and other institutions and environments within which cessation programs operate are explored, including guidance regarding specific actions, policies and programmatic approaches that countries can adopt to maximize the reach, effectiveness and efficiency of cessation services. Key considerations for implementation are reviewed, and resources and links are provided in annexes to assist cessation advocates in educating stakeholders regarding the benefits of strengthening the cessation ecosystem, including financial, health and other advantages.

Limitations: This report is not a how-to manual on the details of individual cessation programmatic elements. For example, it does not contain detailed information on how to operate a quitline, create a cessation app or texting program, prescribe specific cessation medications, or teach counseling skills. Where available, links to more detailed implementation, system and clinical resources are provided in text or annexes.

1.2 Audience for the Report

This report is primarily aimed at national and subnational policymakers. It aims to assist those developing funding priorities and allocating resources for health care and tobacco control. It may also assist managers and local implementers of cessation improvement efforts. Relevant organizations and individuals include government agencies, NGOs, health worker organizations, insurers, hospitals, primary care practitioners and specialty services. The report may also help facilitate implementation and coordination between activities. Details of how to provide clinical interventions are not included, although references and links to more in-depth resources are provided. For the avoidance of doubt, this report is not aimed at supporting or opposing the enactment of any specific legislation but is instead aimed at providing general policy guidance concerning the TCE model.

2.

The Tobacco Cessation Ecosystem: Composition and Structure

This section introduces the tobacco cessation ecosystem (TCE) perspective, including its three core elements: the individuals and institutions involved, the environments in which they operate, and the ways they interact and influence one another. Borrowing from biological systems, the TCE model describes a dynamic network of individuals, institutions and resources that interact across various environments to impact tobacco cessation. The ecosystem perspective identifies opportunities for synergy, gaps and leverage points to improve reach, effectiveness and sustainability.

The tobacco cessation ecosystem is multifaceted and involves many types of individuals and institutions. To effectively reduce tobacco use rates, the TCE benefits from a comprehensive approach, addressing individual tobacco users' needs as well as the larger structural, social and economic factors that influence tobacco use.[13] Coordination across sectors—health care, government, research, NGOs and the private sector—is crucial to ensuring system resilience and efficiency in the face of resource limitations. Attention to the health of the TCE strengthens support for those who want to quit tobacco while also motivating those not yet ready to quit.

The term "ecosystem" originated in efforts to model and understand biological systems at levels above the individual organism. Applying biological ecosystem concepts to human systems has proven helpful in multiple other arenas, including business, information technology, military security and urban planning. For example, in business ecosystem planning, companies and industries are viewed not as isolated entities but as part of interdependent networks with adaptive, symbiotic and competitive interrelationships among suppliers, developers, regulators, distributors and customers.[14]

A biological ecosystem model examines relationships between organisms and their environment, influenced by both biological and non-biological factors.[15] It models the flow of resources like water, energy and nutrients, as well as environmental factors such as climate, sunlight and topography, which affect organism growth and result in varied ecosystems (e.g., rainforests, wetlands, deserts, alpine) depending on their interplay. In biological systems, an ecosystem with ample rainfall, sunlight, nutrients and a livable temperature range is more likely to support a lush, rich, thriving, diverse, resilient ecosystem such as a tropical rainforest. Geographies with minimal rain, nutrient-poor sandy or toxic soil, high altitudes or harsh temperatures are more likely to support only a limited ecosystem with less species diversity and biomass, such as an alpine zone or salt flat. (See Annex 2 for "What Tobacco Cessation can Learn from Nature")

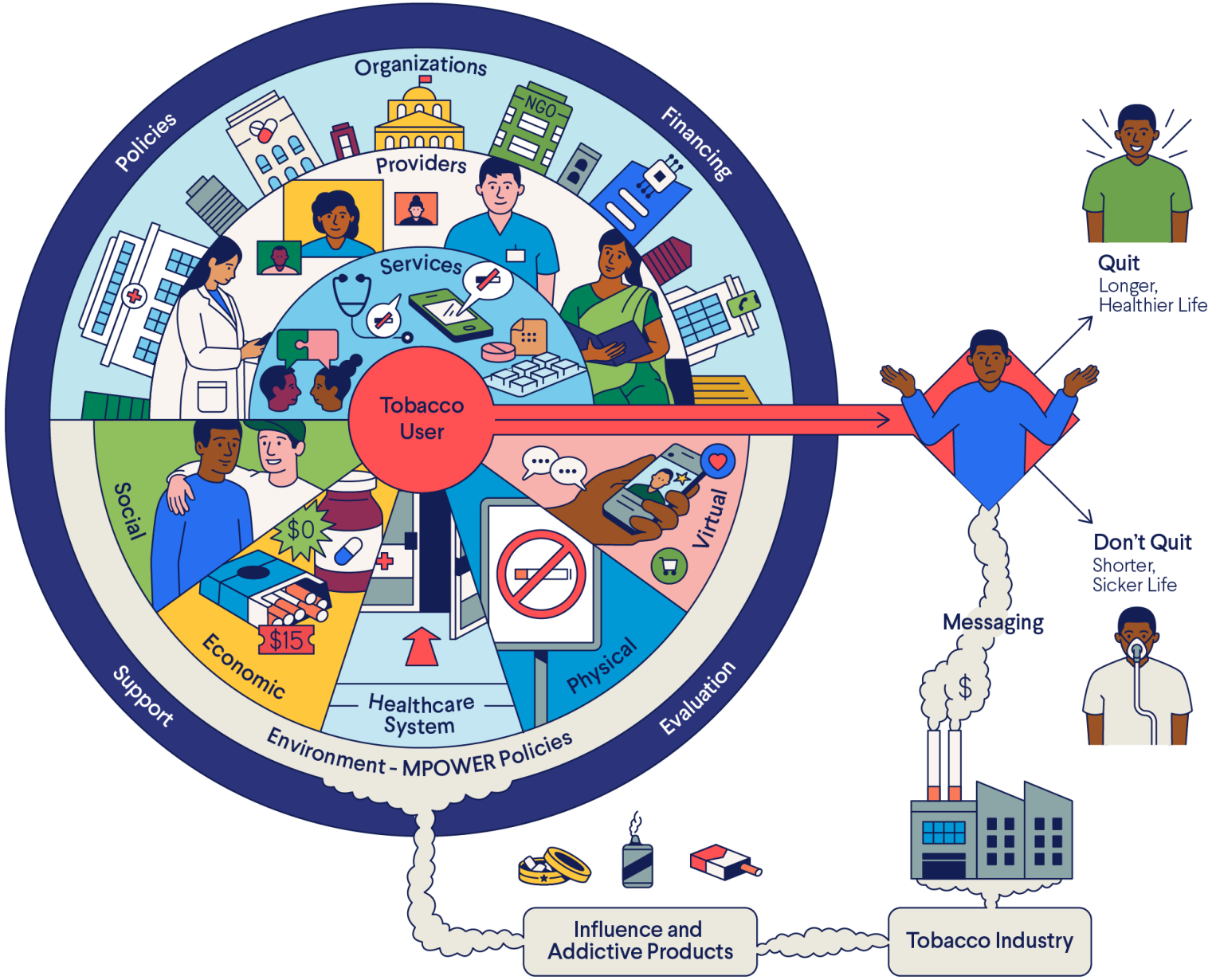
2.1 Individual Components of the Tobacco Cessation Ecosystem

Tobacco Users: Central to the ecosystem, they are buffeted by competing influences to continue or quit. Nicotine addiction plays a powerful role, reinforcing continued use even when motivation to quit is present. Tobacco user characteristics, motivations and context affect how they interact with cessation resources. Social and economic disparities influence access, engagement and outcomes.

Health Care and Cessation Providers: Include clinicians and other health workers engaged in helping people quit (physicians, nurses, dentists, pharmacists, etc.), in-person and quitline counselors, digital intervention teams and community health workers. These providers deliver brief advice interventions, counseling or coaching, and medications. Providers may also distribute written materials and links to digital interventions.

Organizations and Suppliers: Providers work within organizations to deliver services to individual tobacco users. These include hospitals, clinics, and community health centers. Government agencies and technology, call center and health care companies may develop and supply cessation services. Pharmaceutical companies develop and supply cessation medications. Governments, universities, and non governmental organizations support elements of the TCE infrastructure in varied ways.

Other Stakeholders: Other stakeholders include researchers (from government agencies, academia and the pharmaceutical industry), NGOs (which advocate for policy change, provide cessation support and raise public awareness), policymakers, insurers, public health advocates (who shape policy, funding and programs), health care professional organizations, and philanthropic organizations (which promote broader tobacco control measures such as taxation, smoke-free laws, mass media campaigns and cessation-related policies).


Organizations
Policies
Financing
Providers
NGO
Services
Tobacco User
Social
Virtual
$0
$15
Economic
Physical
Healthcare System
Support
Environment - MPOWER Policies
Evaluation
Quit
Longer, Healthier Life
Don't Quit
Shorter, Sicker Life
Messaging
$
Influence and Addictive Products
Tobacco Industry

2.2 Types of Environments in a Tobacco Cessation Ecosystem

Physical Environment: Includes clinical settings (hospitals, primary care, pharmacies), community spaces (homes, schools, workplaces), and access points (clinics, quitlines). Tobacco-free building policies, along with positive cessation messaging such as posters, encourage and support the cessation ecosystem.

Social Environment: Cultural norms, peer and family influence, stigma or support, retail availability (including affordability) of tobacco products, and media exposure (including tobacco industry marketing) can all influence tobacco use and cessation behavior. Systemic inequalities and community-level disparities can shape the way services are perceived, accessed and sustained.

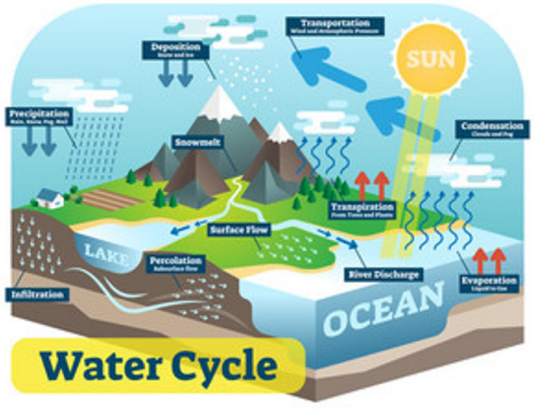
Health System and Economic Environment: The structure and financing of health systems—whether centralized and publicly funded or decentralized with significant private-sector involvement—affects how cessation services are delivered and accessed. Country income level (e.g., low vs. high income) may also influence the availability of medications, digital tools and provider training, with LMICs often facing resource constraints that shape the ecosystem's capacity to provide cessation services.

Virtual Environment: Encompasses digital tools like apps, websites, texting programs and online peer networks. Social media is a virtual environment that can either support cessation efforts or promote tobacco use through targeted messaging and marketing.

2.3 Interactions in a Tobacco Cessation Ecosystem

Component Interactions: Cessation services, users and support systems interact through referrals, resource and financial exchanges, training, and information sharing. Interactions are influenced by policies that include or exclude insurance coverage or other subsidies for cessation services. Other tobacco control measures, such as smoke-free air policies and media campaigns, can also create demand for services. Institutional purchasers of cessation services, including governments, can enhance coordination and efficiency by building in competition between bidders to provide cessation services, including requirements for coordination of services.

Energy Flow (Funding and Resources):
Financial and human resources sustain the ecosystem. Stable, adequate funding supports the delivery of individual components, promotion and infrastructure (e.g., quitlines, mCessation, health care staff training, and services). When resources are insufficient or unevenly distributed, disparities widen and services become fragmented and insufficient, leaving tobacco users feeling unsupported and reducing system effectiveness.



TCE individual components that coordinate are more effective.

Examples include:

- Integrating real-time data from a quitline into follow-up counseling sessions
- Facilitating referrals from physician brief interventions to other cessation resources
- Enhancing medication adherence through mobile app-based reminders
- Ensuring quitters can access barrier-free cessation services regardless of where they receive health care

Collaborative communication, minimizing cost barriers, and data sharing can create seamless patient experiences and increase cessation success.

3.

Understanding the Individual Tobacco User

Individual motivation and capacity to quit successfully are shaped by personal, social and environmental factors that shift over time. Cessation support should thus be affordable, adaptable and available. Training health care workers to systematically take advantage of intervention opportunities increases the number of people quitting, especially when their efforts are supported by health care facilities, government agencies and communities, all working together to counter tobacco industry influence.

Nutrient Cycling/Food Chain Analogy: Evidence-based interventions (medications, counseling, brief advice) function like nutrients, fueling healthy outcomes for individuals. Tobacco products and industry interference function like toxins or invasive species, destabilizing the system. A well-resourced system fosters resilience, growth and resistance to tobacco industry influence; a poorly resourced one resembles a fragile or desert-like ecosystem.

3.1 Individual Tobacco User Characteristics Influencing Readiness/Capacity to Quit

Tobacco users are at the heart of the cessation ecosystem, where their behaviors are shaped by a dynamic interplay of personal, social and environmental forces. They are the focal point of both public health efforts and targeted industry tactics. Whether someone initiates use, continues, quits or relapses depends largely on how these forces interact with their personal characteristics.

Motivation to use or quit tobacco is fluid and can shift moment to moment.[16] The same external factor—a price increase, smoke-free policy or public health ad—can push one person toward quitting and leave another unmoved. Individual responses are influenced by values, personality, biological traits, daily habits and external environments such as social networks, access to tobacco, and exposure to marketing. These elements affect how individuals act on their values, either supporting or obstructing their quit attempts at each stage.

Having cessation support available that can address these varied needs can increase both reach and impact. A single option with a uniform approach may not address diverse motivations, behaviors and preferences. Offering multiple types of support or adjusting methods based on characteristics such as age, gender, health status or tech preferences can improve engagement. For instance, some may prefer in-person help; others may benefit more from phone or digital support, medications or combinations.

Social context matters, too. Financial limitations can restrict access to treatment unless it's affordable or subsidized. Supportive environments encourage quitting, while tobacco-friendly settings can undermine it. Effective programs offer support through channels that match where people already interact—such as clinics, community settings or online platforms.

Understanding these interconnected factors helps programs better align interventions with real-world needs, ensuring that support is not just available but also relevant and usable.

People attempt to quit tobacco for many reasons: health, finances, social pressure, family protection or advice from health care providers. Often this decision reflects awareness of a gap between their values and their tobacco use.

> Strengthening the components of the tobacco cessation ecosystem that encourage and support quitting, while reducing the cues to start or continue smoking, can tip the scales—making it less likely for people to start and easier for them to quit.

Those thinking about quitting may be negatively influenced by tobacco ads and easy access to tobacco, while those actively trying to quit may benefit from smoke-free policies, support resources and medications. Recognizing where someone is in this journey helps tailor interventions to be both effective and timely.

3.2 Practical Implications of Individual Characteristics for Tobacco Cessation Ecosystems

Training programs for health care providers on clinical and community interventions can ensure patients receive accurate information about tobacco use and cessation. Providers should review the benefits of quitting and highlight the availability of additional support (e.g., practical advice, counseling, and when available, medications) with all tobacco-using patients, regardless of their immediate plans to quit. A conversation may spark interest in quitting, even for individuals who may initially seem uninterested. Counselor protocols, clinician training programs and digital cessation algorithms benefit from incorporating flexibility to accommodate changes in users' motivation, interest and readiness to quit.

Beyond health care systems, the larger cessation ecosystem influences individuals. Research institutions, the pharmaceutical industry, NGOs and private-sector organizations all help advance cessation services. Government agencies can play a vital role by shaping policies and funding programs that expand people's access to effective interventions. Identifying key levers that strengthen the cessation ecosystem is essential for supporting individual behavior change and quitting tobacco.

The tobacco industry remains a major force in shaping initiation and continued use. This includes efforts to directly and indirectly influence government decisions relating to tobacco control. Industry efforts to subvert public health and clinical initiatives must be accounted for in strategies to create a more effective, supportive cessation ecosystem.

Cessation programs can increase responsiveness to individual needs and preferences by adopting a more data-driven approach. This includes establishing mechanisms to routinely collect data on individual tobacco users—such as demographics, tobacco use patterns, health concerns, social factors and personal preferences (e.g., preferred mode of support or intervention type). Training health care workers and cessation specialists to deliver more tailored interventions can increase acceptance and effectiveness. At the same time, the TCE provides flexibility, helping to ensure the availability of varied program features, delivery methods, and messaging that respond to individual characteristics and changing needs. This can be achieved either by offering different options for individuals to choose from (the clothing store model) or by making sure that whenever and wherever a person asks for cessation support, the help provided adapts to their needs and preferences (the custom-order tailor model). Three recent randomized controlled trials of chatbot AI-based support were reviewed in the WHO Clinical Treatment Guideline (section 3.2.3), with large benefits seen (for every 12 people receiving conversational AI-based intervention, there was one more case of smoking cessation at six months), suggesting that integrating AI capability into digital cessation services holds promise for enhancing personalized, tailored support.[9] These approaches to program design that do not assume one size fits all can not only enhance engagement and quit success but also ensure that services are relevant, equitable and seamlessly integrated.

Theoretical models can help us understand individual behavior change, predict tobacco cessation outcomes and guide development of counseling approaches. For example, the "transtheoretical model" emphasizes identification of a persons' "stage of change" moving towards quitting. Other common theoretical models used in cessation counseling programs include cognitive behavioral therapy, social cognitive theory, and acceptance and commitment therapy. In contrast, some programs have emphasized empirical, practical counseling based on clinical trial results. Model-driven and empirical counseling program development identifies key factors influencing success and guides creation and refinement of effective interventions. By highlighting interconnections within the cessation ecosystem, models can support comprehensive strategies for diverse populations. While evidence comparing the effectiveness of different counseling models is limited, these frameworks remain valuable for policymakers, clinicians, program designers and individuals seeking to quit. (See Annex 3 for review of different counseling models.)

4.

Review of Evidence-Based Individual Types of Cessation Services

This section briefly reviews evidence-based types of tobacco cessation services, including behavioral interventions, pharmacotherapies and combination therapies, that have been proven effective in supporting cessation. The recommendations from the WHO Clinical Treatment Guideline are referenced, including their applicability in low- and middle-income countries. The role of specialty cessation clinics as part of the broader cessation ecosystem is reviewed. (If you are unfamiliar with the characteristics, benefits and limitations of individual methods, explore the more detailed review in Annex 4.)

Countries can develop their cessation systems by leveraging existing infrastructure—such as health care networks, community systems, academic institutions, call centers and digital platforms—to deliver services efficiently and at scale. This strategy promotes integration, optimizes the use of available resources, and helps foster broader reach and enhance sustainability. For example, WHO recommends embedding brief tobacco interventions into routine primary care as a cost-effective, scalable way to reach large populations, particularly in LMICs.[9]

It is important to understand the characteristics of individual cessation components, as well as how they can work together and be integrated into national or subnational TCE systems. Thoughtful coordination and alignment across modalities and delivery channels will support a more responsive, equitable and high-impact cessation ecosystem.

The WHO Clinical Treatment Guideline for tobacco cessation in adults recommends the following key components that help adults quit tobacco use:

4.1 Behavioral Interventions[9,11]

Brief Advice: Routine, concise advice (30 seconds to 3 minutes) provided in health care settings to encourage quitting. **Strong recommendation.** Increases quit rates at the population level because it reaches all tobacco users using health care services when implemented systematically. (See Annex 4a.)

Intensive Behavioral Support: Individual, group or telephone counseling sessions for those seeking more comprehensive assistance. **Strong recommendation.** Use of intensive support yields higher success rates per quit attempt than brief advice, but only a small percentage of patients use intensive support. Availability may help increase routine delivery of brief advice. Quitline reach is increased with promotion. (See Annex 4b.)

Digital Interventions: Text messaging, smartphone apps and online programs can provide additional support and self-management tools. **Conditional recommendation.** These interventions complement other modalities (by increasing reach), but effectiveness is contingent on program characteristics. Interactivity and tailoring increase effectiveness. (See Annex 4c.)

4.2 Pharmacological Treatments in Clinical and Community Settings[9,11]

Use of medications by those interested in quitting, including varenicline, nicotine replacement therapy, bupropion and cytisine to aid cessation. **Strong recommendation.**

Providing these treatments at no or reduced cost without preconditions or other barriers is recommended to improve accessibility and use, including in primary care settings. Inclusion on the National List of Essential Medicines is recommended. (See Annex 4d.)

4.3 Combination Therapies[9,11]

Combining pharmacotherapy with behavioral interventions increases quit success rates. **Strong recommendation.**

Using more than one pharmacotherapy concurrently increases effectiveness. Awareness of the benefits of combining therapies should be included in provider trainings, and barriers to concurrent use should be minimized.

4.4 System-Level Interventions and Policies[9]

Implementing policies to improve the adoption and integration of effective tobacco cessation interventions within health care systems, including documenting tobacco use status and intervention delivery, training all health care providers and removing cost barriers. **Strong Recommendation.**

Encourage health service managers and policymakers to support the widespread use of evidence-based cessation strategies.

The WHO guideline also reviewed the evidence related to:

Traditional/complementary/alternative therapies such as yoga, mindfulness, hypnotherapy, acupuncture and herbal medicines but found **insufficient evidence to make a recommendation for or against their use.** Because these therapies are popular in many countries, they may provide opportunities to reach additional tobacco users. Therefore, the guideline suggested that where traditional/alternative therapies are used, they can be integrated with a comprehensive approach that also includes evidence-based behavioral support and pharmacotherapy. This approach has been implemented at some primary health care centers in China that have both a cessation clinic and a traditional medicine clinic, with bidirectional referral systems in place.

4.5 Specialty Cessation Clinics

Although not reviewed as a distinct modality in the WHO Clinical Treatment Guideline for Tobacco Cessation, specialized in-person clinics have played a role in tobacco dependence treatment in some settings, especially for heavily addicted users. These clinics vary widely in structure—from full-time operations with multidisciplinary staff and dedicated spaces to mini-clinics staffed a half-day each week by a single provider.

Specialty cessation clinics can improve individual quit success rates for those who attend them, especially among treatment-resistant users. However, they typically have limited reach and may be more resource-intensive than broader-reach interventions. Thus, investment in the development of specialized cessation clinics is not a substitute for integrating core cessation modalities such as brief advice, counseling and medications into primary and specialty health care, which should be prioritized initially due to their greater reach potential.

If developed, specialty cessation clinics should complement, not replace, mass-reach approaches such as brief advice, broad medication availability, quitlines and digital/mCessation services. They benefit from being embedded within a referral network, with cessation clinics focusing on users who require more intensive support. Generally, in-person attendance at these clinics should not be the only way a patient can access cessation medications or counseling, as this will decrease medication use and counseling reach. Specialty clinics can also serve as centers of excellence by supporting training, capacity building and development of protocols for primary, specialty and hospital cessation services. (See Annex 5: Smoking Cessation Clinics for history, limitations, and maximizing benefits.)

5.

Environment and Institutions Within Which Formal Cessation Services Operate

This section examines the broader institutional and environmental context in which tobacco cessation services operate. Integrating cessation into all levels of health care—from primary care to hospitals—can yield major population health gains, yet remains underfunded and inconsistently implemented. Governments, NGOs, research institutions and the private sector each play essential roles in expanding access, coordinating efforts and ensuring the sustainability of cessation services. The tobacco industry continues to undermine efforts with misleading promotion of "harm reduction" products and narratives, creating a need for strong policy safeguards to prevent industry interference.

5.1 Health Care Systems

This section discusses integrating tobacco cessation services into existing health care systems. It highlights the importance of treating tobacco dependence with the same attention as other chronic diseases by emphasizing the need for routine screening, diagnosis, brief advice and treatment. The section explores key health care settings capable of delivering tobacco cessation interventions and the challenges of improving the cessation ecosystem across health care services. Responsibility for providing cessation support does not reside solely with physicians but extends to all health care workers.

Given the widespread impact of tobacco use and the availability of effective interventions and treatments, health care guidelines increasingly emphasize the importance of addressing tobacco use across all clinical settings. Over decades, a consistent set of intervention strategies—applicable to various health care services and providers—has emerged. These approaches are detailed in the overview of cessation modalities in Annex 4. At the core is a clear paradigm shift: **Tobacco use and dependence in patients should be addressed with a standard of care comparable to that expected for the prevention and management of other important diseases and health conditions that cause major morbidity and mortality, including routine screening, diagnosis, treatment or referral, and follow-up.**

Despite decades of evidence about tobacco's deadly toll and its addictive nature, many health care systems have been slow to prioritize cessation. Although effective treatments have emerged over time, cessation services often receive far fewer resources than those used to treat tobacco-related diseases like cancer, respiratory conditions or cardiovascular disease. This mismatch is especially frustrating because cessation support—brief counseling and affordable medications—is relatively inexpensive and effective. Understanding the reasons behind this disparity can help build the case for stronger, more integrated cessation systems.

Factors Contributing to Under-Resourcing of Tobacco Cessation

- Tobacco industry marketing normalizes smoking, downplaying its addictive nature.
- Health care prioritizes and reimburses for disease treatment over prevention.
- Poor coordination, and time and resource scarcity impede cessation prioritization.
- Clinicians receive minimal training on why and how to address tobacco dependence.
- Lack of awareness of guidelines and protocols hinders effective cessation support.
- Insurance coverage or other financial support is often absent.
- Weak integration between public health and clinical systems reduces resources.

Countries deliver and finance health care in different ways, but all have variations on the following categories. Each has specific characteristics that provide opportunities to influence tobacco users to quit.

5.1.1 Primary Care Clinics and Providers

Primary care providers play a central role in tobacco cessation, offering repeated opportunities to deliver brief, personalized advice that can help prevent and manage tobacco-related diseases such as cardiovascular disease, COPD and cancer. Despite limited time, high patient loads and inadequate reimbursement, structured approaches support the consistent delivery of cessation interventions.[17] Evidence consistently shows that brief advice, which can be combined with pharmacotherapy and follow-up, improves quit rates and helps reduce smoking at the population level.[18,19] Expanding training, resources and financial support for addressing tobacco within primary care enhances its role in reducing tobacco-related disease.

Case Study:
Brief Advice in Routine Health Care in China[20]

A very large, randomized trial in China tested the integration of very brief tobacco cessation advice into routine care at outpatient clinics of hospitals and community health centers. Providers delivered a 30-second scripted message ("According to WHO, one in two smokers will be killed by smoking. I warn you that the latest research showed that about two in three smokers will be killed by smoking. You must quit immediately."), a graphic leaflet, and a resources card. Patients were identified through routine screening, and cessation outcomes were tracked over a 12-month period.

At 12 months, 30-day abstinence quit rates were modest but significantly higher in the intervention group (8.0%) compared to controls (6.9%), with a stronger effect observed among patients seen by providers who closely adhered to the intervention protocol. The study showed that brief advice can be feasibly and effectively embedded in diverse health care settings, and even very brief, scripted advice can have a population-wide impact.

Strengths included a large sample size (13,000+), streamlined delivery and brief provider training. Although the absolute abstinence change was small, the population impact was significant, because it affected all smokers, not just the tiny number who would enroll in a cessation program. Key challenges included limited follow-up capacity, inconsistent training, and tobacco use among some health care workers. Even very brief, structured interventions can improve outcomes—especially when paired with systematic screening, provider adherence and supportive infrastructure.

5.1.2 Specialty Medical and Surgical Care Clinics and Providers

Specialty medical and surgical care clinics and providers see tobacco users, many of whom are already experiencing tobacco-related diseases. When patients are educated and informed about tobacco's link to their condition, they are more motivated to try quitting. Specialists may also have more time to spend with patients and more systems in place to monitor treatment, such as in cardiology, pulmonary and diabetes clinics. However, they often lack the training and motivation to provide effective cessation advice and support. Further education about the strong connection between tobacco use and disease outcomes, as well as the effectiveness of cessation support, may increase motivation when combined with additional system support for this work.

Integrating Tobacco Cessation Into HIV and Tuberculosis Care

Tuberculosis and HIV treatment clinics in LMICs are well positioned to introduce and systematically address tobacco use.[21] Tobacco use substantially worsens the clinical course of both TB and HIV infection, increasing the incidence, severity and mortality of both. Tobacco use rates are higher among people with TB or HIV than in the general population. Quitting tobacco improves immune recovery, treatment adherence and survival. Yet tobacco use has been largely overlooked in HIV and TB treatment guidelines and practice, particularly in LMICs where the burden is greatest. Integrating cessation into TB, HIV (and similar established disease management protocols for conditions impacted by tobacco) is an important way to reduce preventable deaths in resource-limited settings.

Effective integration starts with simple system-based modifications consistent with the recommendations detailed throughout this paper. Fortunately, these modifications closely align with the clinical approaches adopted and proven effective for identifying and treating TB and HIV in LMICs. All patients should be screened for tobacco use at every encounter, with clinicians trained and given support to deliver brief advice, encourage use of cessation medications, and follow up with in-house or community-based counseling support or quitline services. Programs in Bangladesh, India, Nepal, Pakistan and Indonesia have successfully embedded these elements into TB services.[21,22] More intense services, including pharmacotherapy, have been evaluated with randomized trials for HIV treatment in Kenya.[23] Even in resource-constrained settings, low-cost interventions can achieve quit rates that may surpass those in wealthier countries. Tailored, culturally appropriate messaging can boost acceptance.

Sustainable models have the following characteristics:

- Engage entire clinical teams rather than relying on a single provider
- Normalize cessation as part of TB and HIV management
- Embed required data collection and intervention reminders into existing forms and protocols already used for HIV/TB tracking
- Use proactive "opt-out" follow-up so that patients continue receiving help unless they decline

TB, HIV and tobacco use frequently intersect with poverty and stigma, so interventions benefit from a nonjudgmental, persistent approach combined with accessible social assistance and mental health support. By embedding tobacco cessation into HIV and TB treatment systems, countries magnify the benefits of existing therapies and accelerate progress toward global targets for infectious-disease control and chronic-disease prevention.

Case Study:
Integrating Brief Advice Into TB Treatment in India and Indonesia[22,24]

In India, TB patients who smoke face poorer treatment outcomes, with 50% of deaths from TB in men attributable to smoking. To address this, a tobacco cessation intervention was embedded into care at Directly Observed Treatment (DOT) TB centers, with health care workers trained to deliver brief advice and follow-up.

A mixed-methods evaluation found that system prompts led to consistent delivery and that training improved provider capacity—leading to better tobacco cessation and TB treatment outcomes. Among patients receiving the intervention, 18.7% quit smoking, compared to 13.5% in the control group. While the approach was effective and feasible, challenges such as limited resources and difficulties maintaining patient follow-up highlighted the need for ongoing support.

A cohort study in Indonesia examined the impact of combining a smoke-free home intervention with brief smoking cessation integrated into TB treatment services. Among 750 new TB patients, 582 were current smokers at baseline. Using a simple ABC model

(Ask, Brief advice, Cessation support) delivered within DOT services at each monthly visit, 66.8% of current smokers had quit within six months. A multivariable logistic regression analysis found that three factors were independently associated with quitting: a time from waking to first cigarette of ›30 minutes, having a smoke-free home, and the display of "no smoking" signage at home at month six.

The Indonesia intervention also led to a significant increase in smoke-free home environments, rising from 18.5% at baseline to 86.1% at six months. Additionally, the number of fully tobacco-free health facilities increased from 65% in March 2011 to 100% by the end of 2012.

These cases demonstrate how brief advice can be integrated into existing disease management protocols in low-resource settings, with meaningful benefits for tobacco cessation, smoke-free homes and facilities, and TB outcomes. With modest investment in training and system prompts, existing health infrastructure can be leveraged to deliver meaningful improvements in both tobacco-related and disease-specific outcomes.

Case Study:
Integrating Cessation Into HIV Treatment in Africa

HIV outcomes are improved if HIV-positive patients quit smoking. Several trials of smoking cessation interventions integrated into HIV clinics have been conducted in Kenya, South Africa, Botswana and Uganda/Zambia. Preliminary results are encouraging. Unlike the TB clinical trials in India and Indonesia, these HIV trials have involved more intensive cessation treatment offerings, including pharmacotherapy (bupropion, combination NRT, nicotine patch), intensive counseling, and clinic integration of identification and interventions into clinic flow. A study of bupropion and intensive counseling in a 2x2 randomized placebo-controlled trial in Kenya found that quit success at 36 weeks was more than double for bupropion compared with a placebo, and for intensive counseling compared with usual care. The largest effect size was a 39%, seven-day point-prevalence smoking abstinence at 36 weeks for participants randomized to receive combined bupropion plus counseling, while those who received a placebo plus usual care showed a 6.6% quit rate.[23]

5.1.3 Community Health Workers

In many LMICs, especially in rural areas, community health workers with limited formal training but strong community ties provide basic care and home visits—offering a promising, though understudied, opportunity to deliver brief cessation advice and referrals to tobacco users who have limited contact with the formal health care system. Examples include ASHA workers in India (see Adaption and Augmentation ASHA case example in section 6.3).

5.1.4 Pharmacies and Pharmacists

Pharmacists are well positioned to support tobacco cessation by counseling patients on both behavioral and pharmacologic interventions, including proper use of NRT and prescription medications. They can encourage follow-up with physicians and inform patients about additional resources such as quitlines and digital tools. By integrating documentation of tobacco use status and cessation support into routine medication counseling, pharmacists can provide accessible, ongoing encouragement to those attempting to quit. Research highlights the effectiveness of pharmacist-led interventions in tobacco cessation.[25]

5.1.5 Dental Services

Dental practices provide dental treatment and regular preventive patient contact, including uniquely visible evidence of oral tobacco-related harm. This makes them a highly effective setting for brief tobacco cessation interventions. As in medical practices, dentists and dental hygienists can systematically identify tobacco use, deliver brief advice linked to oral health outcomes, offer or recommend pharmacotherapy, and refer patients to quitlines or other cessation supports. Embedding tobacco use assessment, advice and cessation support into routine dental care also extends cessation reach to patients who may not regularly access primary medical care. Evidence from systematic reviews indicates that tobacco cessation interventions delivered in dental settings increase quit attempts and abstinence compared with usual care, particularly when brief advice is paired with follow-up or referral.[26]

5.1.6 Hospitals and Their Staff

Hospitals can play a crucial role in tobacco cessation. Hospitalized patients often have underlying health conditions caused or exacerbated by tobacco use, with a higher tobacco use prevalence and dependency. Hospitalization can increase motivation to quit, and quitting smoking before or during hospitalization can decrease readmission rates. Identifying tobacco users systematically, offering brief advice, counseling, and pharmacotherapy before and during hospitalization, and connecting patients to follow-up support after discharge, leads more hospitalized tobacco users to quit. An ecosystem approach coordinates inpatient, outpatient and community cessation efforts to maximize impact.[27] Structured hospital-based cessation programs have been shown to significantly enhance both short- and long-term health outcomes.[28] This integrated model improves quit rates and reduces readmissions for tobacco-related conditions including cardiac, pulmonary, cancer and surgical cases.[29] Respiratory care and nursing teams can be trained to provide in-hospital counseling, or collaborative relationships with quitlines can be forged.

5.1.7 Cessation-Specific Support Services

Dedicated cessation services—such as quitlines, digital tools (apps, texting programs), and in-person counseling through specialty cessation clinics associated with health care institutions, NGOs or community centers—offer tobacco users focused, cessation-specific

support. These services span a range of settings both within and outside the health care system, sometimes accessed directly and sometimes through provider referrals. While they can deliver more concentrated attention than general clinical settings, they also face challenges related to accessibility, awareness and funding, requiring ongoing promotion to maintain reach and impact. (More information regarding cessation-specific services was provided in Section 4.)

5.1.8 Health Care Ecosystem Interactions

All the above health care system components should provide routine support and encouragement to tobacco users to quit. The net effect on the population of tobacco users is far greater when the different elements collaborate and coordinate identification and care, as is done for other serious chronic conditions. Receiving repetitive reminders from multiple sources increases the chance that a person will attempt to quit. As electronic health records become more standard, they can increase capacity to track and communicate tobacco use and intervention status across different health care system components, such as having hospitals share post-discharge quit plans in summaries to primary and specialty care providers responsible for outpatient follow-up. (Also see Case Example on **U.S. Brief Advice Progress,** Annex 9.)

5.2 Other Large Institutions

In addition to health care systems, many other institutions can affect cessation ecosystems, for better or for worse. These are briefly reviewed below.

5.2.1 National and Subnational Governments (Including Ministries of Health)

National and subnational governments—especially ministries of health—have historically played a central role in advancing tobacco cessation by using their authority, resources and public health mandate. They influence both public and private health care systems, including providers and insurers, through measures such as mandatory recording of tobacco use in medical records, funding or requiring insurance coverage of cessation services, regulating medication availability, and funding community-based programs like quitlines and treatment embedded in TB clinics. These actions, combined with compliance monitoring and research support, improve the reach and effectiveness of cessation support. Governments are thus essential leaders in building a strong, resilient cessation ecosystem.

5.2.1.1 Ecosystem Interactions

Governments often face resource constraints and competing priorities, which can limit how quickly or extensively they invest in building a strong cessation ecosystem. In such cases, they can use their authority and funding capacity to foster collaboration among other health system institutions rather than attempting to manage all aspects themselves. Governments can play a convening role—bringing together stakeholders, offering seed funding to launch programs, and encouraging integration of cessation into other government-led services. For example, tobacco control units can work with departments overseeing mental health and substance use treatment, NCD programs, and TB programs to ensure tobacco cessation is included as part of their service delivery.

Government can also use its regulatory authority to require components of the health care system to provide cessation services. Examples include requiring cessation medication in essential medicines lists and requiring public and private insurers to cover cessation services, both counseling and medications (see insurance case examples, Annex 8). National governments can also sponsor and help fund capacity building and capacity strengthening, including for subnational health ministry tobacco control infrastructure, and support population-level coordination between different elements, both within cessation services (such as between primary care and hospital services) and between larger tobacco control initiatives and cessation services (such as between mass media anti-tobacco campaigns, evaluation and quitlines — see case examples, Annex 9). Another example of government tobacco control initiatives directly benefiting cessation has been the dedication of some portion of tobacco excise tax revenue to cessation support, as has been done in some U.S. states, as well as Panama and the Costa Rican Social Security system.

Case Study:
Uruguay

In Uruguay, the national government requires that smoking cessation be included as a mandatory service within the health care system, and providers (both public and private, including mutual health insurance companies) are obliged to offer support to smokers as part of comprehensive health care. This includes providing training as well as specific cessation services paid to providers within the national health system. Smoking cessation is part of the package of services that the national government requires and finances through the framework of Uruguay's National Integrated Health System (SNIS), which covers more than 95% of tobacco users. Most health care insurance and providers participate in the SNIS and cannot deny smoking cessation services to their patients, including integration, as part of the broad range of services they provide. However, compliance is not routinely measured.

SNIS providers receive state funding for all health care services they are required to cover, including smoking cessation, from the overall SNIS budget and management contracts with the Ministry of Public Health (MSP). If a health care provider fails to comply, their funding could be partially affected, although this seldom happens. Additionally, the National Resources Fund (FNR), a non-state public institution that provides public financial coverage for highly specialized medical procedures and high-cost medications for all residents of the country who use the SNIS, has been offering cessation training and free medication (NRT and bupropion) in public and private smoking cessation programs since 2004. There is no Uruguay quitline, but recently the Ministry of Health launched a Virtual Assistant Chatbot (utilization unknown). Based on Uruguay's version of the WHO Global Adult Tobacco Survey (GATS), utilization of medications during quit attempts (17%) and provision of brief advice to quit (44%) are relatively high, with those receiving advice more likely to try to quit.[30] Use of separate specialized cessation programs remains low (about one quarter of one percent of smokers). Future efforts could include a focus on expanding and tracking utilization and quality of existing and new services, including adding varenicline and cytisine, to expand reach and effectiveness.

Case Study:
Costa Rica

According to the 2022 Global Adult Tobacco Survey, approximately 453,500 people in Costa Rica smoke tobacco (about 8% of adults aged 15 and older). Tobacco cessation services are delivered through a publicly financed health system with near-universal coverage, including people who cannot afford to contribute to insurance. The Costa Rican Social Security Fund (CCSS) is the primary national provider of smoking and vaping cessation services, including operating specialized clinics within hospitals and health centers across the country. Primary care serves as the main entry point, where about 60,000 people who smoke or vape are identified and offered brief or more intensive counseling (13% of all smokers). About 3,400 patients are referred and seen at either CCSS cessation clinics, or at the Institute on Alcoholism and Drug Dependence (IAFA) programs, when tobacco use is combined with other substance use. CCSS-funded cessation support also includes services such as a quitline, a free chatbot and public education campaigns. By law, 55% of tobacco tax revenue is allocated to CCSS for prevention, diagnosis and treatment of tobacco-related disease, including smoking cessation; however, there is no specific requirement as to how much of the revenue goes to cessation, and there is no standard publicly covered cessation medication package within CCSS. Information that would help guide program improvements and assess effectiveness includes measuring quit rates and follow-up outcomes, use of the quitline or chatbot, the percentage of health care providers who refer tobacco users to CCSS or IAFA, and national systems or targets for monitoring cessation services' reach.

5.2.2 International Governmental Organizations

WHO has played a key role in coordinating the efforts of countries around the provision of cessation support, as well as developing guidance regarding country-level capabilities and opportunities for improvement. This has included the recent development of a tobacco cessation treatment guideline;[9] various toolkits, training support materials, and manuals; position papers; recommendations regarding country-level inclusion of cessation medications on essential medications lists, and provision of technical support regarding cessation element development such as quitlines and mCessation resources.[2,31,32,33,34]

WHO has also been instrumental in its support and sponsorship for the international Framework Convention on Tobacco Control, a legally binding international U.N. treaty that entered into force in 2005. The WHO FCTC codifies overall country requirements for tobacco control, including Article 14 on cessation.[35]

5.2.3 Research and Academic Institutions

Tobacco cessation research is supported by a range of institutions, including government agencies, academic centers and the pharmaceutical industry. Academic institutions often conduct investigator-initiated and commissioned studies, train health care professionals, develop and provide some cessation services, and provide technical expertise to government efforts. Pharmaceutical companies typically fund drug development, including large trials to support regulatory approval of medications. In contrast, research on the development and testing of behavioral interventions such as brief advice, counseling, quitlines and digital tools

relies heavily on government funding, with some limited support for research from service providers. Overall, funding for cessation research is significantly lower than that allocated to studying tobacco-related diseases such as cancer and heart disease.

5.2.4 Pharmaceutical Industry

The pharmaceutical industry has played a key role in developing and marketing cessation medications, though its interest has fluctuated over time due to economic challenges. Unlike chronic disease medications that generate long-term use, cessation products are typically used for just six to 12 weeks, making them less profitable. While companies include counseling in clinical trials to boost absolute quit rates for regulatory approval, they less frequently invest in optimizing counseling-medication combinations post-approval, as this doesn't increase their revenue. To address gaps in evidence that are important to the overall tobacco cessation ecosystem, government-funded research has helped explore how shorter treatment courses and varying levels of counseling can improve efficiencies and outcomes in real-world settings like quitlines.

Case Study:
Cessation Medications and Counseling

One significant ecosystem challenge has been how to integrate the provision of pharmacotherapy with cessation counseling, since each one is developed, tested and financed through different types of institutions. Many of the original clinical trials of pharmacotherapies leading to regulatory approval included hefty doses of repeated study-related contact, with many including behavioral support as part of frequent research contacts. Clinical trials also included meticulous instruction on how to use medications to maximize effectiveness and minimize side effects. However, once the medications were approved, the symbiotic relationship between counseling contacts and pharmacotherapy tended to diminish. This was especially true with the NRTs in countries where they became available over the counter, where even minimal prescription-related physician counseling was eliminated. In addition, the marketing and distribution networks for promoting pharmacotherapy are better-financed and dovetail with existing promotional efforts around drugs. In contrast, promotion and provision of behavioral counseling support has been more of an "orphan" intervention, often requiring hard-to-finance government support. And in many instances, those providing behavioral support are not connected to mechanisms to concurrently offer cessation medications. In most countries where pharmacotherapies have been approved and are available and marketed, their use by people quitting has increased significantly over the past several decades. However, only a small percentage of those using a cessation medication report using any form of counseling.[36]

As evidence has accumulated reinforcing that the most effective cessation support approach is a combination of counseling and pharmacotherapy, several approaches have been adopted to increase the percentage of people using both. For example:

- Quitlines providing "starter kits" of NRTs that include phone counseling.
- Texting and app-based digital support provided by pharma company or other agency in association with cessation medication prescription or purchase (may require enrollment, with minimal use).
- Efforts to increase the role of pharmacists in providing brief counseling and medication instruction for patients prescribed cessation medications or using them OTC. This has included efforts to expand options for reimbursement.[37]

5.2.5 Private-Sector Providers of Services (For-Profit, Nonprofit and Academic)

Quitline Example: Quitline providers can play a valuable role in the tobacco cessation ecosystem by delivering accessible, evidence-based services through phone, web and text platforms. These services are especially valuable in low-resource and rural settings where face-to-face support is limited. Some governments and large health care systems manage quitline cessation services directly; however, many contract with private providers—including for-profits, academic centers, or nonprofits—to deliver quitline and digital cessation programs. Outsourcing quitline operations can offer several advantages, such as access to established call center infrastructure, trained counselors, and scalable capacity, while reducing startup costs and financial risk for governments. In addition, competition among quitline providers can help keep costs down, improve service quality and customer experience, and encourage innovation.

However, in settings where health agencies already operate call centers or have tobacco treatment expertise, or where direct control is politically or culturally preferred, managing services internally may be more appropriate.

Quitlines can coordinate with mass media campaigns and health care systems to amplify impact. This ecosystem synergy maximizes reach and enables individuals to easily access the support they need to quit. A similar mix of funders and providers supports mCessation services, sometimes bundled with traditional telephone quitline services, while intensive in-person counseling is typically offered through health care systems and community organizations. (See Annex 4 and Section 4 for additional information.)

5.2.6 Nongovernmental Organizations

NGOs play a crucial role in the tobacco cessation ecosystem by advocating for policy change, providing direct cessation support, and raising public awareness. They may bridge gaps in services by offering resources such as counseling, quitlines and educational campaigns, especially in underserved or high-risk communities. NGOs also collaborate with and advocate to governments, health care systems and other stakeholders to ensure that cessation programs are accessible, effective and well-integrated into broader public health strategies. In some instances they may also hold governments and others accountable, such as by "grading" government efforts.[38] Their flexibility and grassroots connections may enable them to more assertively and nimbly support sustainable, community-based cessation efforts.

5.2.6.1 Philanthropic: Grants to Countries to Support Policy Adoption

Philanthropic organizations support the tobacco cessation ecosystem by focusing on broader societal tobacco control policies, such as advocating for taxation, smoke-free indoor air policies, implementation of cessation services, and mass media campaigns. These efforts help create an environment that increases readiness to quit and enhances the impact of cessation programs. Additionally, philanthropic organizations may provide funding for advocacy to accelerate government and private health system and insurer adoption of cessation-related policies. By driving systemic change and fostering collaboration across sectors, these organizations contribute to building a more comprehensive and accessible cessation ecosystem.

5.2.7 Ecosystem Implications

As described in the preceding sections, tobacco cessation efforts are delivered and supported by a range of organizations with distinct roles across service delivery, financing, advocacy and system coordination. Their roles may differ from country to country. The organizations reviewed above can play complementary roles, enhancing the reach, effectiveness and sustainability of cessation services. For example, quitlines provide scalable, cost-effective support with specialized expertise, while NGOs leverage community engagement and advocacy to make cessation resources accessible, particularly in underserved areas. Philanthropies fill funding gaps, support innovation, and catalyze cross-sector collaboration, driving broader tobacco control policies and supporting ongoing cross-sector collaboration to innovate and scale up efforts.

Government agencies can further strengthen the ecosystem by implementing cessation-supportive policies that "nourish" the ecosystem. Examples include providing or requiring coverage or reimbursement for cessation services; integrating cessation into routine health care delivery, and conducting evaluations focused on population impact. Government can restrict the ability of the tobacco industry to manufacture, market and sell addictive products that are hard to quit. Government can also use its authority and purchasing power to foster both collaboration and creative competition between the different health care ecosystem components to maximize the overall impact and efficiency of services. Together, these diverse players can create a cohesive, multilayered approach that maximizes access to cessation services, ensuring that tobacco users receive support and help, thus reducing global tobacco use more effectively.

The importance of program integration and stakeholders working synergistically is described in more detail in Section 2.3 (Interactions in a TCE) and illustrated throughout the report and these annexes:

- Annex 4a shows how brief advice has its greatest population impact when it is delivered routinely and linked to clear referral options and follow-up supports (see also Section 5.1.7).
- Annex 4b highlights how quitlines become more powerful when integrated with other system levers—such as mass media campaigns, pack messaging and primary care referrals—and when they facilitate access to pharmacotherapy (e.g., NRT starter kits) to convert motivation into action (see also Section 6.2).
- Annex 4c similarly emphasizes that digital tools are most effective when they complement (rather than replace) brief advice, quitlines, counseling and medication access, extending support between touchpoints and helping create a more continuous user experience.

Conversely, fragmentation creates barriers and confusion for individual tobacco users. For example, when pharmacotherapy and counseling are available separately, but without capacity to easily access both with a unified cessation plan; when cessation services operate without sustainable financing, promotion, or referral systems; or when digital tools are deployed as standalone substitutes rather than connected supports, overall reach and effectiveness decline—even when the individual components are evidence-based (see Section 5.2.4 and Annex 4d). A resilient ecosystem therefore prioritizes coordinated design and evaluation, emphasizing creative competition that rewards service excellence, results, and cross-collaboration. The focus is on reach and population impact, including measuring how users are helped to move from increased motivation to quit to improved cessation treatment access and routine follow-up (see Section 6.4).

The tobacco cessation ecosystem has made notable strides through the collective efforts of various sectors, yet challenges and wide variation between countries persist. While progress in policy development, research and pharmaceutical innovation has been significant, disparities in resources and implementation remain.

5.3 The Tobacco Industry: Cultivating a Pro-Tobacco Environment

Not all large institutions are working to help people quit tobacco products. The tobacco industry's business model is predicated on addicting new customers and encouraging lifetime use. They work to make the cessation ecosystem inhospitable towards quitting all their commercial tobacco and newer nicotine products.

5.3.1 Shaping the Cessation Landscape

For over a century, the multinational commercial tobacco industry has used increasingly sophisticated marketing, lobbying, product development and influence strategies to obscure the harms and addictiveness of its products while making them ever more addictive and appealing. They have successfully infiltrated institutions like academia, media and government.[39] They have fostered their own pro-tobacco ecosystem that ensures frequent exposure to pro-tobacco messaging and ease of access to products through wholesale and retail distributing networks reaching into neighborhood shops and stores. Numerous studies reinforce that exposure to pro-tobacco ads and imagery[40] and increased retailer density make it harder to quit tobacco.[41]

Historically, the industry has been more tolerant of traditional individual-focused cessation efforts than it has been of other public health policies like taxation, smoke-free laws and product restrictions. So long as few tobacco users utilized cessation programs and succeeded, cessation programs could be portrayed by the industry as reinforcing its narrative emphasizing that individual choice is the "solution" to the harms caused by tobacco. However, as cessation services have improved their reach and effectiveness and been paired with broader policy and media campaigns, their growing impact has increasingly threatened the industry's interests.

Over the last decade, tobacco companies have shifted from denying harm to positioning themselves as part of the solution, promoting "tobacco harm reduction" through products like e-cigarettes, heated tobacco products and nicotine pouches. The companies argue that

these products offer a safer alternative to smoking and should be exempt from the restrictions placed on traditional tobacco. In some countries adoption of e-cigarettes (U.S., Europe),[1] heated tobacco products (Japan, Italy)[42] and oral nicotine pouches (Sweden) has grown rapidly.[43] A 2025 special report to the U.N. General Assembly (A/79/177) emphasized that for tobacco **"harm reduction means adequately and effectively regulating corporate actors"** who **"manufacture and commercialize inherently harmful products, including tobacco,"** and **"exert their power by co-opting the harm reduction narrative or by seeking to position themselves as part of the solution to problems they have largely created, including through alleged harm reduction efforts."** The special report also noted that **"decades after the adoption of the Framework Convention on Tobacco Control and the scientific evidence of the risks to health became public knowledge, the same industry allegedly intends to mend the damage by spreading new products whose health risks are uncertain and which are marketed broadly beyond people who are already addicted to traditional tobacco."**[44]

Although a full analysis of these products is beyond this paper's scope, their implications for cessation policy are critical. The industry promotes its newer products as tools for "switching" rather than quitting, while simultaneously continuing to manufacture and market cigarettes and aggressively opposing measures that would reduce their appeal—such as flavor bans, nicotine reduction and retail outlet limitations. The industry also pursues reduced regulation, lower taxes and public legitimacy for new products, yet markets youth-appealing flavors, resists pharmaceutical approval pathways and largely ignores dual use—the common pattern in which people combine cigarettes with newer products rather than replace them altogether.

The industry also overstates the evidence for harm reduction. While e-cigarettes contain fewer of some (but not all) toxins found in cigarette smoke, they introduce others with unknown effects—and reductions in specific toxin exposures are not equivalent to proven reductions in disease or death. Recent meta-analyses examining actual disease outcomes, rather than toxin exposure levels, do not support harm reduction claims, finding "disease outcomes indistinguishable from or approaching cigarette use, with dual use associated with higher odds ratios."[45]

A striking example of industry overreach occurred in 2024, when Philip Morris International (PMI) donated US$3 million to Medscape, the world's leading continuing medical education provider, to create a smoking cessation curriculum. Unsurprisingly, the curriculum promoted switching to noncombustible tobacco products over traditional cessation.[46,47] After an investigation by the British Medical Journal, Medscape admitted its misjudgment and committed to no longer accepting funding from any organization connected to the tobacco industry.[48]

Policymakers should remain alert to the industry's long history of manipulating public health discourse, including promoting "safer" products like filters or light cigarettes for decades that proved ineffective. Article 5.3 of the WHO Framework Convention on Tobacco Control explicitly warns against treating the tobacco industry as a legitimate stakeholder by restricting engagement to regulatory necessity only.[7]

Sample PMI-Supported Medscape CME Question

"Marco is a 41-year-old man who smokes ~1 pack of cigarettes/day. His father, who was also a smoker, recently died of lung cancer. Marco would like to reduce his risk of cancer and asks you how to best achieve that.

Considering available clinical evidence, what should you tell him?

- Consider switching to pipe smoking
- Consider switching to e-cigarette smoking
- Reduce cigarette consumption to a half a pack of cigarettes a day"

(Advising Marco to quit and providing counseling and pharmacotherapy support was not provided as an option.)

5.3.2 Ecosystem Relevance

From an ecosystem perspective, caution is warranted in evaluating the role of new commercial tobacco products. While some resemble evidence-based cessation tools like nicotine lozenges or inhalers, their similarity is deceptive. In biological ecosystems this is called "aggressive predatory mimicry"—when a predator imitates something appealing to lure prey. The Venus flytrap produces the colors, sugars and scents of flowers or fruit to attract insects. But whereas a flower offers genuine nourishment, the flytrap's imitation exists solely to trap and consume. In the ocean, the anglerfish uses the same logic: a fleshy lure that mimics food, dangled in front of a camouflaged mouth.

Tobacco companies appear to be deploying the same strategy. Products like vapes and oral nicotine pouches may physically and chemically resemble pharmaceutical nicotine products but are designed and marketed to sustain addiction, not end it. The industry's rebranding as "harm reduction" enterprises is itself the lure — disguising a century-old addiction business model behind a façade that mimics public health concern.[6]

Individuals addicted to tobacco and some clinicians may choose to repurpose these newer tobacco industry products to aid in cessation attempts. However, a recent Canadian clinical guideline systematically reviewed the evidence regarding e-cigarettes and conditionally recommended against using them for smoking cessation except under certain limited circumstances. The guideline also emphasized that people who decide to use them should be informed regarding the lack of approved therapeutic products with consistent formulations, the lack of long-term safety data, and the fact that ongoing use of e-cigarettes does not address their addiction to nicotine. It also cautioned that normalizing e-cigarette use as a population approach to cessation could increase the uptake of vaping among youths and nicotine addiction in the general population.[49] Recommending use of tobacco industry products for people attempting to quit, especially within government-sanctioned guidelines, may also increase patient exposure to industry marketing, both online and in retail environments where combustible products are sold. In addition, as noted by WHO,[50] policymakers and clinicians need to be extremely wary of giving the industry openings to weaken consumer protections such as by agreeing to changes in clean air, pricing, marketing and sales restrictions.

6.

The Ecosystem Approach to Tobacco Cessation: Integrating Individual and System Components

An ecosystem approach to tobacco cessation emphasizes the integration of individual, clinical and policy-level interventions that reinforce one another for greater population impact. Effective systems tailor their mix of services to community needs, link cessation with other tobacco control measures, and adapt, augment and innovate to expand reach. Measuring success requires shifting from narrow individual program participant outcomes to ecosystem-wide metrics such as reach, effectiveness and overall quit impact. Ensuring equity—by addressing disparities in access and prioritizing cessation as a core health service—is essential in order to build sustainable, inclusive and high-impact cessation systems.

Tobacco cessation efforts are most effective when various interventions and support mechanisms interact in mutually reinforcing ways. WHO has highlighted the importance of system-level interventions in tobacco cessation, noting that isolated approaches often fail to achieve sustained impact. Instead, integrating cessation interventions into broader health care and public health systems enhances their effectiveness and reach. As in a biological ecosystem, where individual species do not survive in isolation, cessation components work best when different elements interact and support each other.

For example, the provision of brief advice to tobacco users is more effective when complemented by accessible follow-up resources such as quitlines, mobile cessation (mCessation) programs, medications or in-person counseling. These referral resources, in turn, benefit from the widespread delivery of brief advice provided in health care systems, given that health professionals' recommendations effectively promote and validate cessation services at no additional marketing cost. The synergy between brief advice and the availability of referral resources can increase the urge to quit among individual tobacco users who are seen in a health care setting. It also draws their attention to readily available, helpful resources that can boost their cessation efforts.

A robust, diverse cessation ecosystem may also be more resilient. When multiple institutions at different levels are involved in cessation services support, the overall TCE may be able to withstand funding cuts or disruptions affecting any single component.

6.1 Adapting Cessation Ecosystems to Community Needs

Cessation ecosystems vary across communities, requiring tailored approaches based on the availability of key resources and system strengths. In settings where there is strong public health leadership but limited financial resources and an overburdened health care system, lower-cost, high-reach interventions should be prioritized. These may include **MPOWER** policies (Monitor, Protect, Offer help, Warn, Enforce bans, Raise taxes). The "offer help" cessation policies may initially emphasize brief advice from health care providers, mCessation tools and national quitlines. Such lower-cost strategies maximize quit attempts while requiring less infrastructure investment.

In communities with moderate health care system strength but limited public health funding, the focus can also include cessation treatment as a core health care service. Here, strengthening brief clinical interventions, ensuring availability and coverage for cessation counseling and pharmacotherapy, and building leadership support for treating tobacco dependence as a standard component of health care can yield significant benefits. Educating policymakers and health care administrators about the cost-effectiveness of tobacco cessation—both in terms of direct health care savings and long-term public health gains—can help commit additional resources toward these interventions. In more well-resourced communities, additional focus can include optimizing referrals; integrating cessation in hospitals, specialty clinics, antenatal care, and pharmacies, and using data to enable outreach in high-burden communities.

6.2 Synergy Between Cessation Elements and Other Tobacco Control Efforts

Cessation interventions are not isolated efforts; they interact dynamically with broader tobacco control policies and campaigns. For instance, pictorial health warnings and mass media campaigns can enhance their effectiveness by incorporating cessation service referrals, such as linking advertisements to quitlines or digital cessation programs, or encouraging viewers to talk with their doctor about quitting. This integration creates a win-win effect—the campaign is perceived as actively helping tobacco users rather than just delivering a deterrent message, while quitlines, digital services and health care workers see increased engagement without the need for separate promotional efforts.

Proven, cost-effective measures to reduce tobacco use introduced by WHO as an evidence-based package to support implementation of the WHO Framework Convention on Tobacco Control

Another example of mutual reinforcement is when quitlines offer short-term supplies of over-the-counter cessation medications such as nicotine replacement therapy. In countries where access to cessation medications is limited, this strategy can drive significant increases in quitline engagement without requiring separate promotional campaigns. By strategically linking cessation services to other tobacco control efforts, health care systems can maximize their reach and impact without incurring excessive additional costs.

Tobacco cessation is shaped by government agencies, NGOs, health care systems and research institutions, all of which face constraints that are often more acute in LMICs: limited funding, competing health priorities, and fragmented policy support. Population-level measures such as tobacco taxes, smoke-free laws and advertising bans are especially critical in these settings, as they deliver broad reach without heavy demands on clinical infrastructure. When cessation services are embedded within such measures, their impact multiplies. Integrating cessation into national and subnational MPOWER-aligned tobacco control plans helps prioritize resources and surface synergies across the full policy spectrum.

6.3 Strengthening the Tobacco Cessation Ecosystem: Adaptation, Augmentation and Innovation

Expanding the reach and effectiveness of tobacco cessation efforts requires dynamic approaches that evolve and take into account changing technologies, user preferences, and specifics of how clinical and public health services are provided. To maximize impact, existing evidence-based strategies need to be strategically adapted and augmented to reach more people, more effectively.

Adaptation refers to the tailoring of established interventions to suit specific populations, delivery platforms or contextual constraints, thereby enhancing cultural relevance, accessibility and usability. **Augmentation** involves adding new elements to existing approaches to expand their impact. This could include using new communication channels, expanding the delivery of well-established approaches to helping people quit to new types of health care providers, and pairing traditional cessation services with emerging tools to maximize reach and effectiveness. Adaptation and augmentation are particularly critical where the focus is on increasing adoption and implementation of evidence-based practices to amplify their impact.

In addition to adaptation and augmentation, the TCE may also benefit from **innovation,** which refers to the introduction of approaches that are more fundamentally new and therefore may involve greater uncertainty regarding their impact. The (WHO FCTC), Article 2.1 states, "In order to better protect human health, parties are encouraged to implement measures beyond those required by this Convention and its protocols."[51] In addition, at the 10th Conference of the Parties in 2023 (responsible for WHO FCTC implementation) a decision was reached to examine "forward-looking tobacco control measures," including innovative policies that could accelerate the end of the tobacco epidemic.

Innovations in tobacco cessation modalities and their relationships have the potential to achieve breakthroughs in multiple areas. **All the existing evidence-based practices described in this document were initially innovations.** Over time, through experimentation, development and evaluation, they were shown to be effective. Most of them were initially developed and tested in high-income countries. Additional innovative approaches are being

developed in LMICs as their efforts in tobacco cessation expand. New innovations will be crucial to ultimate success in eliminating the death and disease caused by tobacco use. However, as with previous innovations, meticulous evaluation of their impact on reach and effectiveness will be critical before widespread adoption is advocated.

Innovation is particularly important where, despite multiple attempts to increase adoption, reach and effectiveness of cessation practices, the results are unsatisfactory.

Historical examples of innovations now recommended as evidence-based include the delivery of counseling support over the telephone, the use of cessation medications to assist in quitting, the systematic delivery of brief advice in health care settings, and the removal of cost barriers for accessing cessation services. Each of these innovations was carefully and repeatedly evaluated and improved through rigorous studies to prove their effectiveness.

Historical cessation innovations, once they have been proven effective and adopted, increased flexibility in responding to resource and infrastructure limitations. They have begun offering more options for how and where cessation support is provided as expectations have evolved. When implemented within a systems-based ecosystem model, these now-established approaches can be combined with new innovations as they are proven effective. This continued progress can help build more resilient and inclusive cessation support systems—especially in low- and middle-income countries where access gaps persist. Examples of areas where continued innovation may be particularly important include the development of reliably effective and engaging digital/mCessation support that incorporates artificial intelligence-supported counseling; the integration of mCessation support into popular digital service platforms such as WeChat, and the development and evaluation of effective alternative, traditional and complementary cessation therapies in LMICs, where large numbers of people use them, such as in China and India.

Another recommendation from WHO FCTC Article 14 is that countries should "share experiences and collaborate to enhance cessation support services."

Case Study:
Adaptation and Augmentation

In India, Accredited Social Health Activists (ASHAs) and Community Health Officers (CHOs) deliver brief tobacco cessation advice. This new practice builds on the existing evidence base that brief advice from health care providers increases quit attempts, expanding its reach by empowering community health workers to deliver similar support at the community level based on a guide released by the national Ministry of Health and Family Welfare. ASHAs are frontline community-based workers whose duties include home outreach to provide basic screening, monitoring, and health education, all while connecting households to essential primary health care services when needed. ASHAs are overseen by a local medical/nursing CHO, who may also see tobacco users identified as interested in quitting at a Sub-Health Center. Initial results from ten districts in Karnataka state found that 87% of all ASHAs (11,875 of 13,637) and 85.5% of all CHOs

(1,772 of 2,073) had been formally trained via cascade trainings to provide brief advice at the primary level, with integrated reporting systems, expanding the coverage to more than 120,000 tobacco users.[85] Similar results have been seen in three districts in Uttarakhand state, where 79% of ASHAs (3,421) and 82% of CHOs (346) were formally trained. This accomplishment has markedly expanded the sustainable continuum of care for cessation services in the states.

Another example is the integration of emerging technologies, such as the placement of cessation apps into WeChat in China and the use of AI-powered virtual health care workers to help deliver interactive cessation counseling and follow-up support. These platforms enhance and extend the impact of well-established text- and app-based interventions, offering opportunities to scale support to large populations at low cost.

6.4 Key Metrics for Evaluating Success in an Ecosystem-Based Cessation System

Cessation program evaluations often focus solely on program enrollment numbers and quit rates among participants. An ecosystem approach also examines what percent of eligible tobacco users use a specific program, as well as cessation behaviors and program interactions across the entire TCE and tobacco-using population, including those who may not directly seek assistance. This matters because often even highly effective programs with high quit rates may serve only a tiny fraction of tobacco users, limiting their population impact.

Key metrics should include:[52]

- **Reach:** The proportion of tobacco users who receive some form of intervention, whether through brief advice, media exposure or access to cessation tools.
- **Effectiveness:** The likelihood that an intervention will lead to the desired outcome, such as long-term cessation success. Intermediate outcomes may include making a quit attempt.
- **Process:** Beyond measuring the effectiveness of individual modalities, evaluation should consider the interactions and impact of all possible pathways that individually or jointly increase motivation, quit attempts and sustained cessation at the population level. This helps map the state of the tobacco cessation ecosystem and its parts.

Leveraging existing data sources (such as the **Global Tobacco Surveillance System**[53] and similar large-scale population-level surveys that include tobacco and cessation-related questions) provides insights into cessation reach and effectiveness across different settings. Repeated surveys can track improvements in recall of advice to quit and of quit attempts at the population level, for instance. Additionally, ensuring that hospital- and clinic-based data collection systems collect tobacco use, clinic intervention and cessation metrics can help identify areas needing improvement. Data on performance can motivate health care workers to improve and identify best practices for integrating cessation services into health care systems.

As countries plan to improve cessation services, including development of strategic cessation plans, it is helpful to conduct a **situation analysis**. This should include a frank assessment of

the availability and utilization of different cessation support modalities. Areas of strength and weakness should be identified. Such an analysis can be a blend of quantitative and qualitative assessments, using preexisting survey data as well as key informant interviews. Often, the development of a situation analysis will identify needs for additional data collection to understand the status of cessation intervention delivery and to make sure that measurement systems are in place to track the impact of planned improvements. This can be further examined using an evaluation framework that breaks down elements of a cessation services improvement plan into high-level goals with potentially achievable objectives. For each objective, a measurable process and final outcomes can be identified, which may further illuminate data collection needs.

As ecosystem stakeholders work to improve cessation effectiveness, policymakers should encourage coordination across modalities—and a useful lever is identifying shared metrics. In health care systems, for example, tobacco-related performance measures sometimes track only referral rates to cessation clinics. This risks missing whether patients actually connect with the referral, obscures the impact of brief advice on quit attempts, and may discourage providers from developing brief intervention skills—which include brief advice and brief assistance, not referral alone.

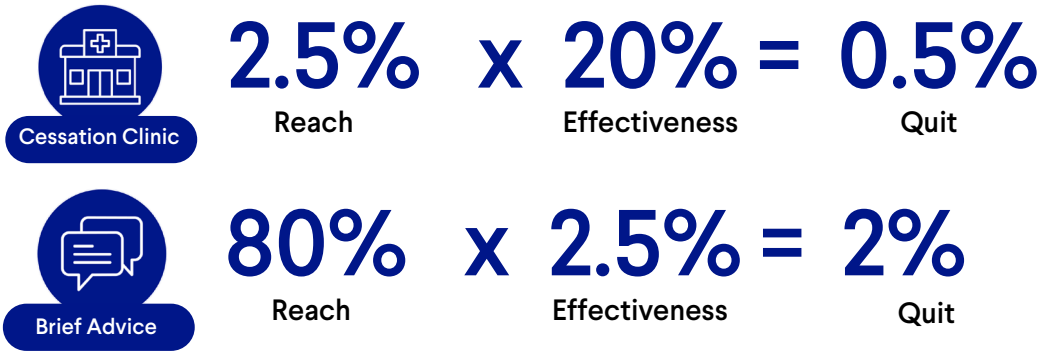
Measuring the provision of brief advice is therefore essential, particularly in countries where tobacco users have low interest in quitting, low rates of quit attempts or low rates of patients who remember receiving provider advice to quit. This tension between referral rates and brief advice tracking illustrates a broader need to measure reach, effectiveness and the full range of pathways to quitting. As discussed in Section 4: Modalities of Cessation Services and Annex 4a, the effect of a single brief advice encounter on quitting is more modest than participation in an intensive cessation clinic. But because brief advice reaches far more people, repeatedly and regardless of their interest in quitting, even a small effect per encounter typically produces greater population-level impact than cessation clinics alone.

Illustration of the Power of Reach: If 2.5% of tobacco users are seen at a cessation clinic **(reach)**, and their attendance improves their chance of success by ~20% **(effectiveness)**, this will result in 0.5% of tobacco users quitting due to the cessation clinic **(impact).** Both of these reach and effectiveness percentages would be ambitious and optimistic in the real world, requiring substantial resources (aggressive promotion, multiple counseling sessions, and pharmacotherapy) and ongoing attention to achieve.

In contrast, if 80% of tobacco users attending a clinic are given brief advice repeatedly at multiple clinic visits **(reach)**, even if, conservatively, this systematic improvement results in only a 2.5% improvement in quit success per tobacco user receiving advice **(effectiveness)**,[54] this would equal 2% of tobacco users quitting per year because of brief advice implementation alone **(impact)**. Thus, the impact of the successful implementation of brief advice would be four times greater compared to aggressively implemented cessation clinics, even though the individual effectiveness of brief advice would be much lower.

Although this hypothetical example presents brief advice and cessation clinics as separate modalities, the reality is that achieving a 2.5% utilization rate for cessation clinics would likely depend on a primary care system adopting brief advice and referring aggressively to clinics. (Also see Annex 9: Case Examples).

Population Impact of Brief Advice vs. Specialty Cessation Clinic



6.5 Ensuring Equity and Accessibility in Tobacco Cessation

Equity is a critical consideration in designing and implementing cessation ecosystems, with two key dimensions:

1. **Disparities between the general population and marginalized groups.** Socially and economically disadvantaged tobacco users—including low-income individuals, racial and ethnic minorities, people in rural areas, and those with mental health conditions—often face greater barriers to quitting: limited health care access, greater exposure to tobacco marketing and retail outlets, and fewer cessation services. Targeted policies and, where needed, targeted or tailored programs to bridge gaps in cessation support, should be developed.

2. **Tobacco cessation is underfunded relative to other chronic disease treatments**. Despite tobacco's immense health and economic burden, cessation remains a low priority compared to conditions such as diabetes or cardiovascular disease, which have well-integrated treatment pathways. Tobacco dependence is often addressed as an afterthought rather than a core health care priority. This gap is compounded, as discussed in section 5.3, by the predatory practices of an under-regulated industry that takes advantage of the vulnerability of youth and adults to maximize addiction and minimize cessation. Lower prioritization contributes to limited access, lower quality of treatment, and less promotion of available cessation resources.

The contrast is stark: Quitting tobacco increases life expectancy and reduces disease risk as much as, or more than, many highly resourced medical interventions. Yet correcting the inequities associated with lack of access to cessation treatment lags far behind the standard of care for tobacco-caused diseases, most preventive services, and even other substance use disorder treatments. Closing these equity gaps requires ensuring that the TCE prioritizes targeted interventions for high-risk populations as well as universal access to cessation treatments—all of which should be well integrated into health care delivery, equally accessible to all tobacco users, and supported by community-level policies that decrease the capacity of the tobacco industry to design and market highly addictive products.

7.

Conclusion

Tobacco use remains a preventable global epidemic, with extensive health, social, environmental and economic consequences. Despite remarkable progress in reducing tobacco use, much work remains to be done. The TCE, consisting of health care institutions, health care workers, policymakers, research institutions, pharmaceutical companies and governments, must work in concert to create a supportive environment that offers tobacco users robust, accessible, coordinated, and comprehensive support.

While individual cessation services such as brief advice, counseling, medications and digital interventions have demonstrated effectiveness, their full potential is best realized when integrated into a cohesive, systemwide approach. The interconnected nature of the TCE emphasizes the importance of coordination across sectors and the benefits of repeated, multisource messaging that supports tobacco users throughout their quitting journey. Improving the TCE will be most successful when combined with ongoing and increased societal efforts to decrease the power and influence of the commercial tobacco industry.

Challenges persist, including in low- and middle-income countries, where access to cessation services remains limited and the tobacco industry continues to undermine efforts through targeted marketing and the promotion of its new and conventional products. Addressing these challenges requires prioritized investment and implementation focused on policies that enhance cessation, including the integration of barrier-free access to cessation support in health care and public health infrastructure.

The identification and optimization of the levers that strengthen the entire cessation ecosystem, such as financing, tracking of impact indicators, and leadership support, are key. By improving integration, expanding access to services, and addressing both systemic and individual barriers to cessation, a more effective and sustainable reduction in tobacco use can be achieved globally. This will ultimately lead to better public health outcomes, a reduction in the economic burden of tobacco-related diseases, and a healthier future for all communities.

Principles for a Thriving Cessation Ecosystem

- Increase reach, including to those at greatest risk and with high prevalence.
- Provide reliable, sufficient funding, leadership messaging and system support.
- Maximize environmental support (other MPOWER elements that increase quit attempts and decrease relapses).
- Protect the Tobacco Cessation Ecosystem against invasive tobacco industry misinformation, manipulation, marketing and addictive-product access.
- Foster cross-institutional and cross-modality collaboration, coordination and support to create a fully integrated, resilient cessation ecosystem.

8.

Glossary

- **Adaptation:** Tailoring established interventions to suit specific populations, delivery platforms, or contextual constraints.
- **Application (app):** A software program designed to perform a set of integrated functions on a computer, smartphone or other digital device. Apps can support communication, productivity, entertainment, education, health, navigation and more.
- **Artificial intelligence (AI) cessation interventions:** The use of computer systems to augment or simulate human intelligence in tobacco cessation intervention using machine learning algorithms and natural language processing. May be used to provide real-time conversational support via tailoring of text messages or audio/visual chatbots.
- **Augmentation:** Adding new elements to existing cessation intervention approaches to expand their utility and impact.
- **Behavioral support for tobacco cessation:** Providing knowledge, skills and strategies to help individuals quit tobacco and stay motivated, delivered through counseling, coaching, or digital tools.
- **Brief Advice (BA):** A short (30-second to three-minute) intervention delivered in health care settings to all tobacco users during routine visits to encourage quitting, including a strong recommendation and information on available cessation support.
- **Chatbot:** A computer program that uses artificial intelligence to simulate conversation with users, often through text or voice, to answer questions, provide support or guide users through interactions or activities.
- **Counseling (intensive behavioral support):** An interactive process in which a trained professional supports an individual in exploring challenges, setting goals and developing strategies for quitting. In health contexts, counseling often involves using evidence-based techniques to promote behavior change. Tobacco cessation counseling may be provided face-to-face, by phone (e.g., quitlines), via chat or texts, or in group settings.

- **Digital cessation interventions (see mCessation):** Tools delivered remotely to support quitting tobacco, including text messaging, apps, AI and web platforms. Also referred to as mCessation, these interventions offer accessible, scalable support for behavior change.
- **Ecosystem (biological):** A biological ecosystem is a group of animals, plants and microbes interacting with each other and their environment in a specific area with similar climate, water and nutrients. These systems include both living (plants, animals, people) and nonliving (climate, soil, water) elements that interact through the flow and cycling of energy and nutrients. A healthy ecosystem adapts to change while maintaining its core structure and functions.
- **Ecosystem (digital):** A digital ecosystem is a network of interconnected digital resources, including technology, data, applications and stakeholders, whose interaction achieves shared goals.
- **Ecosystem (tobacco cessation):** The system of people, programs, environments and policies that interact to influence a person's inclination and ability to quit tobacco. Includes tobacco users, cessation service providers, suppliers (pharma companies and tobacco companies), government, academia and NGOs.
- **Effectiveness:** The percentage of people who successfully change a targeted behavior, such as quitting tobacco long-term after using a cessation service, or making a quit attempt after a motivational intervention such as brief advice or a media campaign.
- **Health system:** An organized network of people, institutions, resources and activities functioning together to promote and maintain health and treat acute and chronic illness. Includes hospitals, clinics, health care workers, public health agencies, insurance providers and regulatory bodies.
- **Impact:** The product of Reach times Effectiveness, it's the overall population-level change in a health outcome such as quitting smoking that is attributable to an intervention.
- **Innovation:** Development and introduction of approaches that are more fundamentally new. These may involve both more promise and more uncertainty as to their reach and effectiveness.
- **mCessation (also see Digital) digital cessation tools accessed via a mobile device:** The use of digital tools delivered remotely—such as text messaging, apps, AI and web platforms—to support quitting tobacco. These interventions offer accessible, scalable support for behavior change.
- **Modality:** Different channels or mechanisms for achieving similar therapeutic results. The different modalities of brief advice in clinical settings, in-person counseling, phone and digital support, and medications all support and improve tobacco cessation success.
- **Nicotine replacement therapy (see Pharmacotherapy):** Medications that provide low doses of nicotine without the other harmful chemicals in tobacco, helping reduce withdrawal symptoms and cravings during a quit attempt. Common forms include patches, gum, lozenges, nasal spray and inhalers.

- **Pharmacotherapy (for tobacco cessation) (see nicotine replacement therapy):** Medications used to help people quit tobacco by reducing withdrawal symptoms and cravings. This includes NRT and non-nicotine prescription medications such as bupropion, varenicline and cytisine.
- **Providers:** Clinicians and other health workers involved in delivering health services, including physicians, nurse practitioners, physician assistants, nurses, dentists and hygienists, pharmacists, behavioral health clinicians and counselors, respiratory therapists, and community health workers. The term may refer only to licensed clinicians or sometimes include additional health workers with patient-facing roles.
- **Quitline:** A telephone-based service that provides free support to help people quit tobacco, often providing counseling, self-help materials, referrals and follow-up support. Quitlines may also offer or facilitate medication access and digital interventions such as websites, apps and text messaging programs.
- **Reach:** The total number of people exposed to or taking part in an intervention divided by total target population (expressed as a percentage).
- **Tobacco industry:** Corporations involved in the manufacture, distribution, promotion and sale of commercial tobacco and nicotine products. Excludes pharmaceutical companies providing nicotine replacement therapy to aid cessation, which are medicines approved by government drug regulatory agencies for that purpose. (Also referred to as the commercial tobacco industry, commercial tobacco, and nicotine companies.)

Annexes

Annex 1: Resources

These resources help policymakers, health leaders and implementers put this report's strategies into practice. They include links to WHO-endorsed guides on brief interventions, quitlines, medications, digital tools and health system integration—offering adaptable, evidence-based tools to support tobacco cessation.

Tobacco Treatment Framework and Guidelines

WHO Clinical Treatment Guideline for Tobacco Cessation in Adults (2024) This guideline supports health care providers in clinical and community settings, reviewing evidence for brief advice, behavioral support, and medications. It informs policymakers and health managers about system-level interventions to strengthen tobacco cessation efforts.

A Guide for Health Workers: Helping Tobacco Users Quit (2024)
This guide put out by India's Ministry of Health and Family Welfare provides basic information to familiarize health workers with tobacco problems in India, the health effects of tobacco and secondhand smoke, provisions under anti-tobacco law, and the workers' role in educating communities to bring down the prevalence of tobacco use.

Treating Tobacco Use and Dependence—2008 Update (most recent)
This Clinical Practice guideline put out by the U.S. Department of Health and Human Services (HSS) contains evidence-based strategies and recommendations designed to assist clinicians, tobacco dependence treatment specialists, and health care administrators, insurers, and purchasers in delivering and supporting effective treatments for tobacco use and dependence. Includes details on counseling and medication.

The WHO Framework Convention on Tobacco Control (WHO FCTC) is the first treaty negotiated under WHO. It provides evidence-based guidance to reduce tobacco use and exposure through national policies on regulation, cessation, advertising, and public health protections.

Tobacco Treatment Framework and Guidelines

The Global Investment Case for Tobacco Cessation
The guide outlines the health and economic benefits of investing in evidence-based interventions to support tobacco cessation in low- and middle-income countries. The goal is to provide policymakers, donors, advocates and other relevant stakeholders with a sound and evidence-based economic case for investing in and scaling up these measures. (Includes link to methodology and results summary.)

WHO Manuals and Training Packages Brief Advice/Health Systems

Strengthening Health Systems for Treating Tobacco Dependence in Primary Care (2013) and its companion **Toolkit for Delivering the 5As and 5Rs Brief Tobacco Interventions in Primary Care (2014)**
This training package and toolkit support countries in integrating brief advice into primary care as a first step toward comprehensive cessation treatment. It helps build capacity to implement WHO FCTC Article 14 and the Global Action Plan for Noncommunicable Diseases.

Training for Primary Care Providers: Brief Tobacco Interventions (WHO e-Learning Course)
This online course is for primary care practitioners and other health professionals. It covers the health, social and economic impacts of tobacco use, the benefits of quitting, and the key elements of tobacco dependence. Participants will learn how to educate and motivate patients as well as how to deliver brief interventions.

Implementation Research Toolkit (2018)
Overview of barriers to large-scale deployment of new approaches in health systems. Methods for optimizing the introduction of new proven health interventions and technologies by ensuring access, delivery and usage are presented. Targets health care providers, researchers, managers, administrators and policymakers. (Not specific to cessation.)

Quitline Protocols and Counselor Training
Developing and Improving National Toll-Free Tobacco Quitline Services (2012)
This manual, based on experiences from quitlines around the world, provides technical advice and case examples for establishing and operating a national quitline service, with a focus on choosing an appropriate service delivery option.

Training for Tobacco Quitline Counselors: Telephone Counseling (2014)
This training package is based on empirical evidence, best practices and over 20 years of clinical experience in delivering quitline services. It is primarily intended to serve as comprehensive initial training for new quitline counselors in low- and middle-income countries.

Protocols and System Integration

Smoking Cessation—The Role of Healthcare Professionals and Health Systems (CDC)
Overview of the 2020 U.S. surgeon general's report on smoking cessation, highlighting the benefits of quitting; the effectiveness of counseling, medications and quitlines, and the vital role of health care providers in offering brief advice and referrals, from the U.S. Centers for Disease Control and Prevention (CDC).

Protocol for Identifying and Treating Patients Who Use Tobacco
(Million Hearts.HHS.Gov)
This HHS protocol serves as a model of how to deliver brief advice and build clinical decision support into the electronic health record (EHR) to achieve tobacco use intervention goals.

The Brief Tobacco Intervention (US CDC/ NCI/AMA, 2024)
Pocket card review of the 2As and R and 5As brief advice models from the U.S. CDC, the National Cancer Institute (NCI) and the American Medical Association (AMA).

The US Clinical Treatment Guideline for Treating Tobacco Use and Dependence
The complete guideline includes recommendations, evidence and considerations for effective tobacco cessation interventions.

Systems Change: Treating Tobacco Use and Dependence (Agency for Healthcare Research and Quality, US)
Clinical Practice Guideline chapter outlining strategies to help health care leaders support tobacco dependence treatment, such as identifying tobacco users, training staff, integrating treatment into performance reviews, and adopting supportive hospital policies.

Smoking Cessation and Smokefree Environments for Tuberculosis Patients (2010)
This guide developed by the International Union Against Tuberculosis and Lung Disease explains the association between tobacco smoke and TB and presents the "ABC" intervention, which TB services (and others) can use.

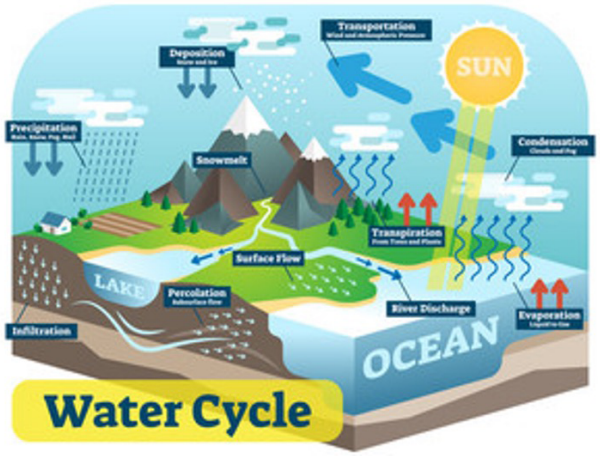
Digital Technology/mCessation Strategy and Implementation

Global Strategy of Digital Health 2020-2025
This WHO document outlines a shared vision and practical framework to support countries in integrating digital health into national systems (not tobacco-specific—2021).

Digital Tools
Smokefree.gov is a website developed by the U.S. National Cancer Institute to assist smokers in quitting. It offers a variety of free, evidence-based resources including web pages, mobile apps and text messaging programs.

BE HE@LTHY BE MOBILE: A Handbook on How to Implement mTobaccoCessation (2015)
This WHO/International Telecommunications Union handbook is designed to assist countries in putting together a detailed work plan for the development and deployment of a national level mCessation program.

Annex 2: Ecosystems—What Tobacco Cessation Can Learn from Nature



In nature, ecosystems thrive or collapse based on the balance of interactions among living organisms and their environments. Rich, resilient ecosystems—like lowland rainforests and coastal wetlands—are supported by the contributions of diverse species living in stable conditions with sufficient and consistent input of sunlight, rainfall and nutrients. In contrast, fragile ecosystems with limited biodiversity—like some deserts or alpine zones—struggle to withstand disruptions and are more vulnerable to collapse.

A similar dynamic applies broadly to public health systems and specifically to tobacco cessation systems. A strong cessation ecosystem depends on diverse, well-resourced and interconnected components: trained personnel, accessible services, reliable and sufficient funding, effective policies, and supportive infrastructure. When health care systems include a variety of actors in cessation support—such as physicians, nurses, quitlines, clinics, pharmacists, counselors, community health workers, digital tools and media—they become more adaptable and capable of sustaining cessation efforts over time. Overreliance on a single strategy, location, type of provider, or limited resources makes the system weaker and less able to respond to challenges.

Foundational ecological concepts—such as mutualism, predation, competition and resilience—offer powerful analogies to illustrate how different forces interact and shape the overall functioning, strength and sustainability of the tobacco cessation ecosystem, as explored throughout the main report. The table below explores how these biological relationships can help us reimagine and reinforce cessation efforts.

Conceptual Crossover: Biological Ecosystem and Tobacco Cessation Ecosystem

Concept	Definition	Biological Ecosystem Examples	Tobacco Cessation Ecosystem Examples
Adaptation	Shifts in organisms and their functions in response to changes in the environment.	A wetland ecosystem may adapt to increased seasonal flooding or seawater encroachment by shifting toward more flood and salt-tolerant species over time.	As new tobacco products are introduced, the TCE integrates new ways to treat users wanting to quit, based on surveillance, research, and program adaptation such as vaping treatments.
Competition	**Competition** in ecosystems occurs when organisms strive for the same resources that are in limited supply, such as food, water, sunlight, shelter and space. Competition can either enhance resilience and efficiency, or contribute to population crashes due to resource monopolization.	Lions and hyenas compete for the same prey; tree species competing for sunlight can enhance energy use by inhabiting different levels of forest. Invasive species crowd out native species.	Evidence-based health messages about quitting compete with pro-tobacco industry marketing and the normalization of smoking or vaping on social media.
Energy flow; nutrient and water cycling	Sunlight energy stored in plants; flows from plant-eaters to carnivores to decomposers.	Ecosystems with lower energy input, fewer nutrients and less water cycling may be less biodiverse and resilient, such as a cave or deep ocean bottom as compared to a rainforest or coral reef.	Tobacco users are identified and motivated by media, community and brief advice.
Mutualism	Mutualism is a relationship between two organisms of different species that provide each other with needed resources like shelter, food or protection from predators.	Bees pollinate flowers while feeding on nectar, benefiting both species.	Community health workers deliver encouragement for quitting, while counseling and medications fuel success.
Stressors or Threats	**Stressors or threats** can weaken an ecosystem. They can be environmental, like changes in annual rainfall, or species changes such as introduction of a new invasive species.	Climate change with increased annual temperature leading to forest fires and hurricanes; introduction of brown tree snake in Guam destroyed the bird population.	Introduction of flavored e-cigarettes with lower pH nicotine salts (JUUL) led to rapid rise in youth use and addiction.
Predatory Mimicry	Predatory mimicry is when a predator uses deception by resembling another organism or object to attract and capture prey. Predator may mimic appearance, smell, movements or food to draw prey in range.	The anglerfish uses a part of its body that mimics a small fish's shape and movements to lure and catch its prey easily without using much energy; the Venus flytrap secretes sugar to attract insects, then catches and eats them.	Tobacco and commercial nicotine products (e.g., flavored e-cigs, pouches and heated tobacco products) are marketed as safer and "cool" to mislead users and ease initiation and ongoing addiction to nicotine.
Biodiversity and Resilience	Biodiversity refers to the level of variety of life-forms in an ecosystem.	A coral reef with diverse fish, coral and algae species can better withstand and recover from events like bleaching or storms. In contrast, a less biodiverse reef may collapse, lacking species to fill essential roles.	Quitline systems funded through multiple mechanisms (country/subnational/NGO/insurers) may withstand withdrawal of funding better than sole-source funded quitlines.

Annex 3: Practical and Theoretical Counseling Models for Cessation

Effective counseling is a cornerstone of tobacco dependence treatment. It can include two types of evidence-based components: practical skills-based strategies and theory-based counseling.

Practical Counseling[55]
Practical counseling provides a menu of supportive approaches that have empirical support from clinical trials, without requiring that they all fit together into an overarching theoretical model for inclusion. Counseling elements are relatively straightforward, not requiring high-level training to deliver. Key examples include helping patients:

1. **Recognize and anticipate danger situations that increase relapse risk.**
   Examples include stress and bad moods, proximity to other tobacco users, cravings, and exposure to tobacco products and marketing.

2. **Understand basic information about addiction, withdrawal and the quitting process.**
   Examples include quitting completely rather than cutting back, avoiding or exercising caution with using alcohol while actively quitting, and understanding that withdrawal symptoms such as urges, bad moods and difficulty concentrating usually decrease after one or two weeks.

3. **Build problem-solving and coping skills to address danger situations and cravings.**
   Examples include using substitutes, altering routines to avoid triggers, employing delay and distraction techniques, and replacing unproductive thoughts likely to lead to smoking (like, "I need a cigarette to cope") with constructive alternative thoughts ("Smoking won't reduce my stress, but a walk can") that lead to continued abstinence.

In the cessation ecosystem, a practical counseling approach may be well suited for clinical settings where cessation support is provided by busy practitioners with other duties and less training or interest in psychological theory. A drawback is that there may be less guidance as to which elements to provide based on individual characteristics, with practitioners relying more on clinical "instinct."

Theoretical Counseling Models[11,56]
In addition to practical techniques, counseling algorithms and trainings can benefit from well-established theories of behavior change. While practical strategies address what to do in a quit attempt, theoretical models help explain why people change behavior—and how to support that change. Several well-established models underpin many counseling strategies.

Transtheoretical Model (TTM/Stages of Change): Outlines a sequence of readiness stages—precontemplation, contemplation, preparation, action and maintenance—that individuals often move through when quitting. It normalizes relapse and supports tailored interventions. However, its linear structure may oversimplify the complexity of quitting, the rapid fluidity of movement between stages, and may underemphasize broader social and environmental influences. In the cessation ecosystem, this model has been used in program development, in media messaging, and as an aid for clinicians to tailor intervention based on someone's readiness to quit.

Cognitive Behavioral Therapy (CBT): A structured, well-studied approach that helps individuals identify and change negative thought patterns and behaviors to improve emotional well-being and solve problems associated with quitting. CBT addresses smoking triggers, identifies high-risk situations, and promotes more effective coping strategies to deal with urges and cravings to smoke, including for relapse prevention. In the cessation ecosystem, CBT provided the theoretical foundation for counseling protocols in many structured cessation programs and is well known among mental health counselors. It works best with people who are motivated enough to engage in exercises and practice new strategies.

Motivational Intervention (MI): MI is a directive yet patient-centered counseling approach that is collaborative, nonconfrontational and nonjudgmental. It helps people explore and resolve ambivalence about behavior change (e.g., quitting smoking), strengthening motivation and commitment.

MI can be delivered by health care providers, counselors or quitline coaches and is especially useful for individuals not yet ready to quit. Studies demonstrating effectiveness found that MI required more training than other models. Core techniques include expressing empathy, active/reflective listening, affirmations, summarizing and building self-efficacy. Adaptations of MI employ the same counseling style across different settings.[57]

Social Cognitive Theory (SCT): SCT views behavior change as the result of dynamic interactions between personal beliefs, environmental influences and observed behaviors. It emphasizes self-efficacy, role modeling and reinforcement. SCT is particularly effective when designing interventions that leverage social and environmental support, though it can be complex to implement and resource-intensive. In the cessation ecosystem, its emphasis on interactions between personal factors, behaviors and the environment has helped bridge the gap between social policy advocacy and cessation support, such as by emphasizing the benefits of clean air regulations in supporting cessation.

Acceptance and Commitment Therapy (ACT): A psychological approach that helps individuals accept cravings and difficult emotions and thoughts while committing to actions aligned with their values. ACT incorporates some mindfulness techniques and promotes psychological flexibility as it trains people who are quitting tobacco to accept the feelings and thoughts associated with cravings and urges while mobilizing their core values to commit to remaining abstinent. In the cessation ecosystem, ACT has been effective when incorporated into mCessation tools to provide real-time support for managing urges and cravings.

For more information on counselor training for quitlines and health care providers see:

Training for Tobacco Quitline Counsellors: Telephone Counseling
(Training package providing information on evidence-based training for quitline counselors)

Strengthening Health Systems for Treating Tobacco Dependence In Primary Care
(WHO toolkit on brief tobacco interventions, with practical counseling in primary care.)

Theory at a Glance
This NCI monograph is designed to help users understand how individuals, groups and organizations behave and change—knowledge they can use to design programs. (See page 15 for Stages of Change Model and page 19 for Social Cognitive Theory.)
Acceptance and Commitment Therapy: A Narrative Review
This 2025 review article from the Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, India provides an overview of ACT.

What Is Cognitive Behavioral Therapy?
This page offers an overview of Cognitive Behavior Therapy from the American Psychological Association, highlighting CBT's evidence-based effectiveness and core principles. Annex 3: Practical and Theoretical Counseling Models for Cessation

Annex 4: Specific Cessation Delivery Modalities (4a Brief Advice; 4b Quitline; 4c mCessation; 4d Pharmacotherapy)

4a: Brief Advice (BA)[9,11,18,55]

Definition and Role

Brief advice for tobacco cessation is a short intervention, typically lasting between 30 seconds and three minutes, delivered during routine clinical interactions. The aim is to advise and motivate tobacco users to quit, with a clear recommendation and provision of information on available cessation support options. Content and duration of advice may vary based on a patient's readiness to quit, reason for visit, and other factors. Brief advice sometimes extends into delivery of limited assistance, in which case it may be referred to as "brief tobacco intervention." BA can be delivered by any health worker, although it is most well studied in physicians.

Benefits

The impact of each individual BA interaction on the chances of a tobacco user quitting may appear modest. But when provided routinely and repeatedly, it has the capacity to create significant population-level impact on tobacco use prevalence. This is because a large percentage of tobacco users access health care one or more times over the course of a year, and because the intervention is delivered to all tobacco users. Brief advice helps all tobacco users regardless of their interest in quitting. Routine provision of brief advice in all health care settings is critical in order to achieve a high level of population reach and can serve as an entry point for the provision of additional evidence-based cessation support.

An advantage of BA is that health care systems and individual health care providers can incorporate it into existing patient care flow, as its delivery is designed to fit in with other routine activities provided in health care settings, such as acute care visits, preventive screening, and assessments done for conditions like hypertension, diabetes, and TB. Brief cessation advice may be especially important in LMICs, considering resource constraints and less awareness of the harms of tobacco use.

Operational Framework—Key Findings

The 2024 WHO Clinical Treatment Guideline for Tobacco Cessation in Adults and the 2008 U.S. Treating Tobacco Use and Dependence Clinical Practice Guideline are both grounded in systematic reviews of the evidence. Both emphasize the importance of brief advice. Below is a summary of recommendations.

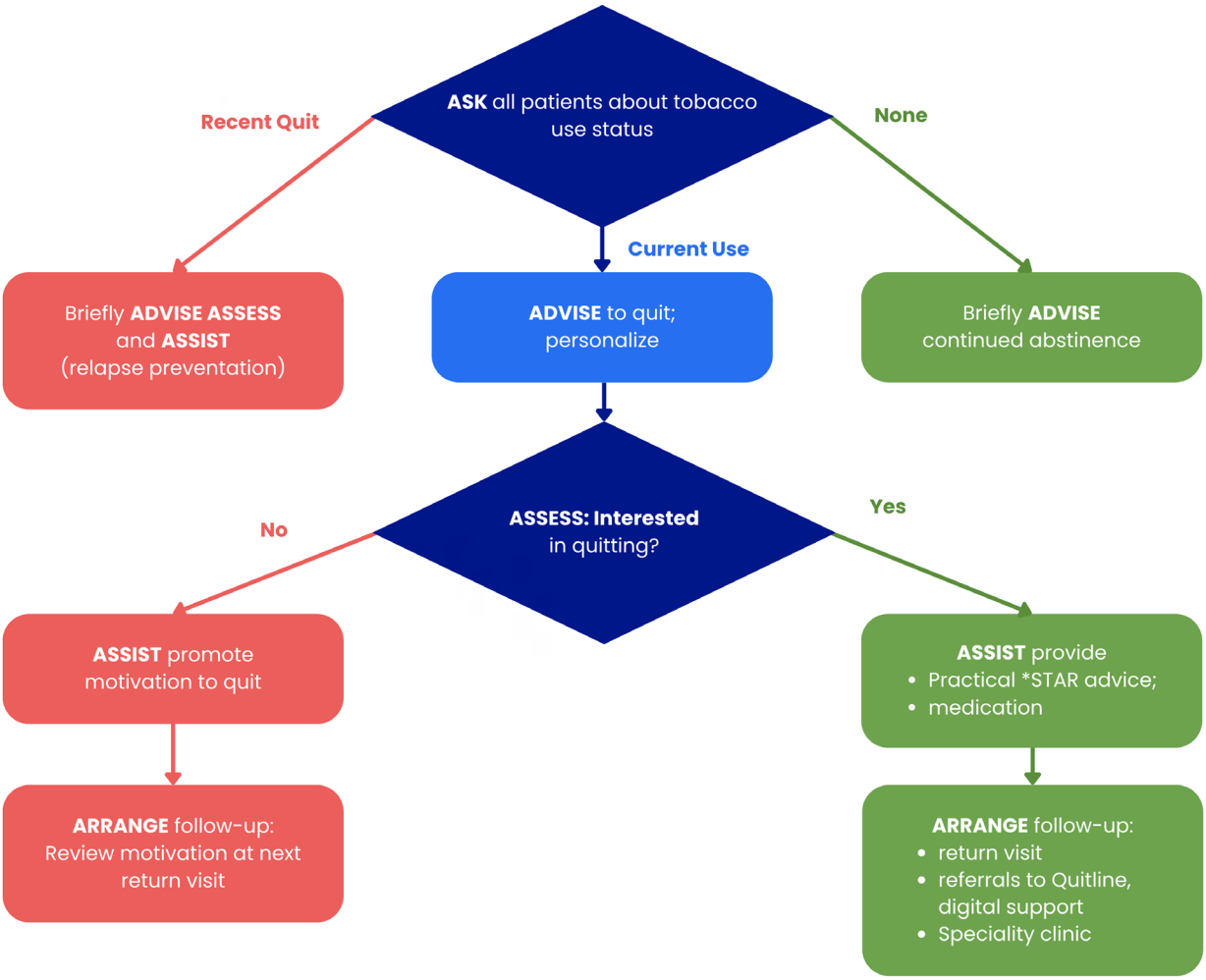
- **Brief Advice:** All health care providers should consistently offer brief advice to quit smoking, even if the interaction lasts only 30 seconds to three minutes. This has been proven to increase abstinence rates and should be routine practice in all health care settings.
- **Importance of Recording Tobacco Use:** All health care facilities should implement a system to identify tobacco users and record interventions, making sure the information is entered into a patient's medical record (including electronic health records). This facilitates provider interactions and increases the offering of cessation advice and interventions.

- **Training:** Train all health care providers to deliver effective, evidence-based cessation interventions and to integrate skill delivery into routine care, including embedding ongoing prompts and feedback to enhance effectiveness. If prompting, feedback and system support are available, brief advice trainings can be short (hours, not days).
- **Benefits of Additional Support:** Although not required for the delivery of brief advice, adoption and effectiveness increase when more support can be offered to tobacco users who want to quit. These interventions include individual counseling, group counseling, telephone counseling and/or cessation medications. The WHO guideline also notes potential benefits to making digital cessation support available, such as through phone texting, apps, and the internet.
    - Making multiple options available increases patient access and choice and may relieve pressure on busy clinicians, increasing compliance with providing advice.

Brief Advice Delivery Models and Practical Applications in Specific Settings
Several effective models have been developed and tested for systematizing delivery of brief advice. They all rely on routinely identifying a patient's smoking status and providing brief advice. The models vary as to which supportive elements are emphasized, and where and by whom they are delivered. All share most of the general content of the BA intervention. Determining which BA model to start with in a particular health care setting depends on factors like time available to spend with patients, clinic flow, provider interest and training capacity, follow-up availability, and patient characteristics.

Model Acronym	Model Description
Comprehensive Model (5As): • **Ask:** Identify all tobacco users at every visit. • **Advise** all tobacco users to quit. • **Assess** readiness to make a quit attempt. • **Assist** patient with quit plan (set date, plan for challenges, consider medication/help). • **Arrange** follow-up at check-back or referral	Works best in settings with more time, resources, training capacity and patient engagement. Especially appropriate for well-resourced primary care and specialized clinics or settings where patients are at higher risk (cardiac, pulmonary or cancer patients).
Efficient Model (AAR): • **Ask** about smoking. • **Advise** patients to quit. • **Refer** those interested in quitting for support (on-site, quitline, cessation clinic, digital, other).	Fits environments with very limited time, allowing providers to deliver interventions with less impact on workflow. Only works if reliable, easy-to-access referral options are readily available.
Balanced Model (ABC): • **Ask** about smoking status. • Give **brief advice** to stop smoking to all people who smoke. • Provide evidence-based **cessation support**.	Provides an adaptable middle ground with support provided for every person who smokes, either on-site or via referral (including helping them access). The "C" includes Assess, Assist and Arrange.

5A Clinical Tobacco Model



*

- **S**et quit date
- **T**ell friends
- **A**nticipate challenges
- **R**emove Tobacco

Model Attributes and Pros/Cons

Model*	Steps	Attributes	Pros	Cons
5As	**Ask** **Advise** **Assess** **Assist** **Arrange**	**Comprehensive** but may be time-consuming; ideal for settings where providers can spend more time with patients.	**Comprehensive:** Offers a thorough approach to tobacco cessation, addressing multiple aspects of quitting. **Adaptable:** Can be tailored to different stages of readiness to quit. **Structured Follow-up:** Includes a plan for ongoing support (Arrange), which is crucial for sustained cessation success.	**Time-Consuming:** May not be practical in busy health care settings or for providers with limited time. **Requires Training:** Providers may need additional training to effectively implement all five steps.
AAR	**Ask** **Advise** **Refer**	**Efficient** for brief or complex encounters; focuses on **quick referral** to cessation support after identification of tobacco use and brief advice to quit.	Efficient: Suitable for brief encounters, making it practical in settings with time constraints. **Focuses on Referral:** Encourages connecting patients to specialized cessation resources, such as quitlines or support groups. **Easy to Implement:** Requires minimal training and can be quickly integrated into care	**Less Comprehensive:** Lacks the depth of support provided in more detailed models, as it does not include on-site assistance with quitting. **Relies on External Support:** Success depends on the availability and quality of referral resources, and the patient's willingness to use them.
ABC	**Ask** **Brief Advice** **Cessation Support**	Emphasizes **immediate actionable advice** to prompt quit attempt, providing brief support and follow-up either directly or via referral.	**Balanced Approach:** Combines brief advice with a plan for follow-up support, making it flexible and less reliant on referral than AAR but less time- and training-intensive than the 5A/5R model. Helps initiate the quitting process without overwhelming the patient or health care provider.	**Less Detailed:** Lacks the full support structure of the 5As. Less tailoring around readiness to quit. Assumes "cessation support" is readily available, which may not be the case.
5Rs	**Relevance** **Risks** **Rewards** **Roadblock** **Repetition** (Optional supplement to 5A model)	**"Motivational interviewing" method for patients not interested in quitting** Addresses misinformation, anxiety about quitting, perceived benefits of smoking, etc.	**Motivational:** Designed to engage patients not yet ready to quit, addressing individual concerns and motivations. **Personalized:** Tailored approach focuses on individual factors and barriers. **Supports Long-Term Engagement:** Emphasizes repetition, making it suitable for building motivation over time.	**Not Standalone:** Typically used as an adjunct to "assistance" in the 5As, so not sufficient model on its own. **Time-Intensive:** Requires more training and delivery time and effort, which may not be feasible in all health care settings.

Challenges and Opportunities

Factors That Increase Adoption of Tobacco Cessation Brief Advice

Small system changes increase routine delivery of BA.

- Training health care workers increases their patients' chance of quitting, especially when combined with broader system support for health care worker action.
- Brief "advice" usually includes more interaction than simply saying "quit smoking."
- Looking at patients' experiences and how they move through clinics can highlight ways to better identify tobacco users, offer brief advice, and provide support.
- A team-based approach can make delivering brief advice more efficient in busy health care settings. For example, one staff member could check tobacco use, the main health care provider could give advice, and others could be available to offer follow-up support.

Policymaker and Policy Support

- Policies that remove barriers and actively encourage tobacco cessation interventions can significantly increase their adoption.
- Increasing availability, reimbursement and cost support for clinical, behavioral and pharmacological interventions makes them more accessible.
- Implementing quality assurance and improvement metrics and developing feedback systems similar to those employed for other chronic diseases improves cessation outcomes.
- Documenting tobacco use and prompting health care providers to offer brief interventions, whether with paper-based or electronic health record systems, makes it easier to monitor, provide feedback, prompt health care workers, and generate referrals more efficiently.
- Maintaining consistent, repetitive messaging from leaders emphasizing the importance of this work increases motivation.

Role in the Tobacco Cessation and Control Ecosystem

Brief advice is provided within the larger framework of delivering health care services. Every country, even every community, varies in how health care services are provided to community members. Thus, how brief advice is integrated into a particular health care ecosystem depends on the individual components of that system and how they interrelate. (See case studies on Brief Advice implementation in China and United States and economic cases in India and Vietnam.)

In an ideal environment, BA is only one component of a rich cessation ecosystem, supporting and supported by the other elements.

More Information:

- Strengthening health systems for treating tobacco dependence in primary care
- Smoking Cessation - The Role of Healthcare Professionals and Health Systems (CDC)
- Protocol for Identifying and Treating Patients Who Use Tobacco (Million Hearts.HHS.Gov)
- The Brief Tobacco Intervention (CDC)
- Systems Change: Treating Tobacco Use and Dependence (HHS)

4b: Toll-Free Quitlines: A Well-Established, Flexible Tool in Tobacco Cessation and Public Health Interventions[9,11]

National and subnational toll-free quitlines provide remote cessation support connecting individuals to trained counselors and other services. Quitlines have been well studied, with decades of real-world implementation experience in many settings. They can provide a practical countrywide or subnational mechanism toward offering help to quit, especially to those who cannot or will not seek in-person support, and can also facilitate the adoption of tobacco cessation advice in primary care settings and enable access to low-cost pharmacological therapy.

Historical Context and Rationale

Quitlines were introduced in the 1980s in Europe and the United States to help more people quit smoking by overcoming common barriers, such as cost and accessibility, associated with existing treatments. Group cessation classes were effective, but many smokers were hesitant to attend, and organizing these classes was often difficult. One-on-one counseling with health care professionals was effective but faced adoption challenges. These included difficulties maintaining professional involvement, raising awareness among tobacco users, and addressing travel and time constraints that limited access. Additionally, even proven treatments to help people quit smoking were not covered by public health programs or insurance. To overcome these challenges, phone-based cessation support services were developed, tested in multiple randomized trials, and then incorporated into health care systems, subnational jurisdictions, and eventually at the national level.

Quitlines are well-studied, highly effective, cost-efficient tools for helping people quit smoking.[58] They are accessible to users because they eliminate common barriers by not requiring travel and typically not costing callers any money. Quitlines are especially valuable for populations with limited access to other cessation resources.

As of 2018, 70 out of the 181 member countries that have signed the WHO FCTC had established quitlines. Among these, 60% were in high-income countries, 32% in middle-income countries, and 8% in low-income countries. The growing availability of mobile phones and telecommunication infrastructure in LMICs holds promise for the provision of cessation services through quitlines. Nearly 6 billion people are connected to mobile phone services globally, with most of the recent growth occurring in LMICs.

Types of Quitline Services

Quitlines provide a range of services, which may include an initial screening to collect demographic information and smoking history; evidence-based counseling to build skills, confidence, motivation and social support to assist with quitting.

Types of Quitline Approaches

- **High Reach, Brief Support:** Focuses on reaching many people with single-session counseling, usually when they call for assistance (reactive support), often tied to mass media campaigns or quitline call numbers on cigarette packs.
- **High Effectiveness, Lower Reach:** Targets specific groups, like those without health care or who are referred by community agencies, to provide highly effective support to fewer individuals, such as proactive callbacks and sometimes pharmacotherapy.
- **High Reach and High Effectiveness:** Delivers full services to a broad audience, combining wide access with strong support, requiring substantial staffing and funding.

Quitlines differ widely worldwide in population coverage and services offered. Some focus solely on reactive counseling, responding to incoming calls from tobacco users. Others include proactive callbacks, when counselors follow up with participants to offer additional support. Evidence suggests that proactive calls lead to higher quit rates, though reactive calls are also effective compared to no intervention, and they require less complex call center infrastructure and staffing. The scope of counseling, including the number and length of calls, is shaped by the program's budget and objectives related to reach (how many people in the target population access the program) and effectiveness (quit outcomes).

While quitline services have traditionally been delivered by phone, there is emerging evidence that suggests carefully developed mCessation tools such as text messaging, websites, apps and AI-driven chatbots can be integrated into quitline services to enhance support (see mCessation 4c).

Quitlines can facilitate access to cessation medications through mail, pharmacy vouchers, or guidance on obtaining them from health care providers. This may be part of routine service offerings or provided as part of quitline marketing campaigns. In areas where access to medication is limited, adding free NRT availability often results in dramatic increases in calls.[59,60] To make resources sufficiently available, courses as short as two weeks are sometimes offered, along with education on how to access further support, which has been shown to increase reach and effectiveness.[61]

Quitline Challenges and Opportunities

Quitlines face challenges reaching people who are not ready to quit, and they contend with barriers such as limited infrastructure, lack of government support for promotion and services, and inadequate provider training. As use of digital services expands, fewer users may seek live phone support, prompting quitlines to integrate digital options like apps and mCessation tools into their services.

Planning and capacity building are essential in order to align resources with demand. If people call a quitline and can't get through to promised help, their motivation will decrease. Meeting demand becomes especially important but is challenging when the quitline number is displayed on cigarette packs or during media campaigns and a tsunami of calls rolls in.

When demand exceeds live-answer capacity, strategies to manage long hold times, call high abandonment rates, and provide after-hours support is critical. Options include automated systems that can offer callbacks or prerecorded messages. Systems that allow callers to choose between a menu of options using interactive voice response (or tapping a number on one's phone keypad) provide a better experience than a single recorded message.

Callers can also be directed to digital resources like apps, texting programs, chatbots and automated enrollment. Triaging counselor time by having them handle incoming new calls during high demand may also help. Clearly communicating with callers about hours, wait times and alternative resources will make them feel supported and engaged.

Examples of Integrating Population-Based Strategies: Quitlines, Brief Advice and mCessation

Instead of managing separate promotional campaigns, administrative structures and cessation guidelines, economies of scale can be achieved by creating an integrated cessation support service. Such a service combines traditional telephone counseling with the development, delivery and coordination of mCessation resources.

Quitlines also complement health system efforts to implement and sustain brief advice by serving as a dependable follow-up resource, eliminating the need for hundreds of in-person cessation clinic visits.

Other opportunities to expand reach and service capacity include integrating quitline services into existing health hotlines and forming public-private partnerships to support promotion and funding.

Role in Tobacco Control Ecosystem: A Population-Based Intervention
Quitlines can offer low-cost, wide-reaching support to reduce tobacco use at the population level. Quitlines can also work together with other initiatives, such as by supporting the integration of brief advice into primary care, serving as a reliable resource in media campaigns, and increasing accessibility to digital/mCessation support. Combining these three population-level tobacco cessation interventions can form a dynamic integrated tobacco cessation ecosystem.

Integration With Policies, Promotion and Funding
Toll-free quitlines and other tobacco cessation programs reach optimal effectiveness when they are implemented alongside demand-reduction tobacco control policies. These policies include raising tobacco taxes; establishing smoke-free environments; banning tobacco advertising, promotion, and sponsorship; printing pictorial health warnings on tobacco product packs, and launching anti-tobacco mass media campaigns. These measures promote tobacco cessation by encouraging people to quit and creating a supportive environment.

A compelling example of this integration is including the quitline number on cigarette packs and in mass media anti-tobacco campaigns, measures that have been shown to significantly increase demand for quitline services. Quitline reach and effectiveness also depend heavily on funding, with evidence showing a strong link between financial investment, promotion and service utilization.[58]

Flexibility in quitline structure and delivery may increase reach, capacity and engagement, allowing services to be tailored to the unique needs and preferences of different populations and to adjust to rapid changes in call volumes. This approach may include varying the number of calls, offering digital service options (see next section 4c), and providing customized messaging based on demographics, tobacco type, readiness to quit, motivations to quit, chronic illness and other factors.

4c: MCessation: Digital Tools in the Tobacco Cessation Ecosystem[9,11] Review of Evidence and Implementation Considerations for mCessation Programs

MCessation refers to digital tools delivered remotely to support cessation efforts, such as text messaging, apps, AI and web platforms. These interventions are a promising and emerging approach to supporting tobacco cessation efforts. The tools may function independently or complement other cessation services, including quitlines, in-person counseling, medications and health care-based programs. While some studies demonstrate the potential for effectiveness of these interventions, their novelty means they face limitations, widely varying levels of effectiveness, and implementation challenges. As experience with mCessation grows, insights will help refine these strategies to maximize their impact and effectiveness.

Rationale for Including mCessation Programs as Tools to Support Tobacco Cessation
Digital interventions have the potential to provide value in the tobacco cessation ecosystem due to several factors:

- Widespread global access to the internet and mobile phones suggests that digital interventions may help increase access to cessation support, especially in areas and populations with less access to health care services.
- Emerging evidence demonstrates promising outcomes for specific digital cessation tools.
- Economies of scale are achieved by leveraging information and communication technologies.
- There's a potential to significantly expand reach and enhance user engagement by
  - Providing patient support between counselor or health care provider sessions.
  - Appealing to people with access barriers or who prefer to use digital tools.

Summary of mCessation/Digital Findings
The 2024 WHO Clinical Treatment Guideline for Tobacco Cessation in Adults and the 2020 U.S. publication Smoking Cessation: A Report of the Surgeon General provide reviews of the evidence on technology-mediated tobacco cessation interventions. WHO evidence findings can be found in Annex 6.

The WHO Clinical Treatment Guideline provides cautious support for incorporation of digital tools into the cessation ecosystem given their potential to reach large numbers of tobacco users efficiently. However, it recommends looking carefully at the characteristics of specific digital programs used, and avoiding having digital options supplant all other modalities.

The conclusions of the 2020 U.S. publication Smoking Cessation: A Report of the Surgeon General,[11] which followed a less systematic evidence review process, are slightly more

favorable regarding the evidence for effectiveness of web programs specifically, but also stipulates that effectiveness is improved by tailoring content to the individual and including interactive elements. The WHO report[9] also examined more recent data on AI-supported chatbot programs with favorable evidence summaries. The figure below summarizes the evidence certainty findings from the above two reports:

The Evidence Base

	WHO 2024 Guidelines	US, SGR 2020
Text Message	Moderate-certainty evidence	Sufficient evidence, particulary if interactive or tailored
Internet-based interventions	Very low-certainty evidence	Sufficient evidence, particulary if interactive with behavior change techniques
Smartphone apps	Low-certainty evidence	Inadequate evidence
AI-based interventions	Low-certainty evidence	Not examined
Overall	Conditional recommendation* – interactive tailored content with careful design, monitoring and evaluation	No overall conclusion – Elements that make a particular technology effective may shift as technologies evolve

Further research is required to evaluate the effectiveness of digital interventions.
*Digital tobacco cessation modalities (text messaging, smartphone apps, AI-based interventions or internet-based interventions), individually or combined, can be made available for tobacco users interested in quitting, as an adjunct to other tobacco cessation support or as a self-management tool.

See WHO Clinical Treatment Guidelines for Tobacco Cessation in Adults for more information.

Digital health interventions present significant evaluation challenges. These include diverse study methods, marked variations in quality, different levels of engagement, theoretical approaches, inclusion of overlapping tools such as apps combined with AI, and limited real-world data. It highlights the need for further comprehensive evaluation and standardization to refine and scale effective tobacco mCessation solutions.

Integrating Digital/mCessation Tools in the Tobacco Cessation Ecosystem
Technology-mediated services, including text, web, AI and apps, have the potential to support the tobacco cessation ecosystem by efficiently assisting with outreach, enrollment, engagement, treatment delivery, data collection and progress monitoring. To maximize impact they must be evidence-based, easy to use and cost-effective.

Using a tobacco ecosystem framework can help with digital/mCessation tool development. A "digital ecosystem" is made up of connected platforms, services, devices, and users who share information and adapt the system to people's needs. A strong digital health system includes reliable technology like cloud storage, mobile devices and internet access; tools that use data to offer personalized support, and clear policies that protect user privacy and support innovation. Digital cessation tools can be used on their own to help people quit tobacco. But they are more powerful when combined with other TCE services—like brief advice from health

care providers, quitlines and medications (if available). Within a TCE, digital tools can help create a more connected, supportive experience for users and improve overall impact.

Digital health ecosystems work best when people use them regularly with interactive feedback. Policymakers can use existing guidelines and recommendations to enhance digital health systems so they include cessation components, and to foster thoughtful and equitable development and integration with other nondigital services:

WHO Global Strategy on Digital Health 2020-2025
The Role of a Smart Health Ecosystem

Barriers and Challenges Regarding the Adoption of mCessation Programs

Digital quit programs have significant potential but face key challenges.

- Digital tools are costly to develop and maintain. For instance, typical app development costs can range from $30,000 to over $300,000, depending on complexity and the development team's location.
- Some digital programs don't work well or aren't always available. Issues like poor internet access and low user engagement can make them less effective.
- They require enough funding to support delivery, track their use, and make sure they're easy for everyone to access. Digital service funding model should be sustainable and maximize cost efficiencies with higher use, with markedly lower costs per user and without excess profits for digital provider.
- Static content often fails to sustain interest, and stand-alone tools like apps and AI frequently underperform outside clinical trials.
- Technology changes fast. Programs need to keep up with how people use digital tools and how content is delivered.
- People without reliable internet, modern devices or strong digital skills or strong digital skills may have trouble using these tools, which widens disparities.
- Privacy and data security are also critical to maintaining user trust.

Overcoming these challenges is essential to making digital tobacco cessation programs effective, equitable and impactful.

Strengthening the Adoption of mCessation Programs
Digital cessation tools require strategic implementation to maximize their impact including:

- Design programs to scale and adapt them to reflect cultural, linguistic and demographic diversity.
- Evaluate programs under consideration to determine whether they are engaging and effective.
- Integrate traditional services (e.g., quitlines) with digital solutions, and leverage EHRs to connect health care systems with cessation services.
- Promote digital tools through awareness campaigns, public-private partnerships.

- Use robust data privacy measures to build trust and encourage adoption.
- Allocate adequate funding to support ongoing promotion, delivery, evaluation and improvement.
- Support other MPOWER elements to increase quit attempts and general interest in cessation support.

With these strategies in place, digital cessation tools can effectively complement traditional approaches, broaden their reach, and support diverse populations in their journey to quit tobacco.

4d: Pharmacotherapy

History

Pharmacotherapies for smoking and tobacco dependence began to emerge prominently in the 1980s, with the development of nicotine replacement therapy (NRT) products. Early nicotine gum formulations were followed by patches, lozenges, inhalers and nasal sprays, all designed to help reduce smokers' withdrawal symptoms by delivering, for a limited period of time, controlled doses of nicotine without the harmful ingredients found in cigarette smoke. The NRT products were also designed to be less addictive than cigarettes. In the 1990s, the antidepressant bupropion was found to also help decrease nicotine cravings. In 2006, varenicline was introduced, targeting nicotine receptors in the brain to mitigate both withdrawal and the pleasurable effects of smoking. Medications were developed in an attempt to minimize withdrawal distress, manage negative mood effects of quitting and, in the case of varenicline, block nicotine's reward pathways, thereby improving cessation success rates. Cytisine is a chemical derived from natural plant material that has been used for many years as a natural cessation treatment. It has a similar mechanism of action to varenicline and is in various stages of promising randomized trials and regulatory review.

As these medications gain acceptance, insurance coverage and public health initiatives in some countries have expanded their reach. For instance, in the United States, the Affordable Care Act (ACA) requires most health insurance plans to cover smoking cessation treatments (including counseling and FDA-approved medications) without cost sharing, although the specific details and accessibility can vary by state and plan. Quitline services—telephone-based counseling often offered free of charge—are frequently promoted in conjunction with pharmacotherapies, as the combination of counseling and medication has been shown to significantly increase quit rates over either strategy alone. These phone- and web-based programs guide smokers on how to best use NRT, bupropion or varenicline, provide accountability, and offer ongoing behavioral support.

Current Status

Despite these available treatments and supportive services, only a subset of smokers who try to quit each year use pharmacotherapy. Rates of medication use during quit attempts vary, with some estimates showing that in jurisdictions where medications are available at minimal cost, less than one-third of smokers who attempt to quit use them. Even when used, cessation medication is seldom paired with counseling, and duration of use is brief (one to two weeks). Public health agencies, employers and health systems aim to improve awareness and usage of these treatments, as proper use substantially increases the odds of successfully quitting tobacco.

Additional detailed information about individual pharmacotherapies is available at:

Pharmacologic Product Guide in implementation toolkit from RxforChange (UCSF) with current dosing instructions, precautions and side effects, pros/cons.

The WHO Clinical Treatment Guideline Section 3.3 reviews evidence for each cessation medication and ways to optimize impact.

Patient-focused information on pharmacotherapies, including use instruction (U.S. CDC)

Outside high-income countries, the availability and use of pharmacotherapies for smoking cessation varies significantly, often depending on a country's regulatory framework, health care infrastructure, and socio-economic conditions. In many high-income countries, NRT, bupropion and varenicline are licensed, widely available and sometimes reimbursed—though the degree of reimbursement or subsidization differs from one national health system to another. Even in high-income countries, out-of-pocket costs for these treatments remain a significant barrier for low-income or uninsured individuals. In addition, where not forbidden by government regulation, some insurers erect barriers to access, such as requiring pre-authorization before a prescription will be covered, and sometimes only covering it if certain criteria are met, such as high dependence levels, high motivation or having previously failed to quit successfully without medication. These criteria are not evidence-based and are put in place primarily to discourage medication use for the sake of short-term budget savings while ignoring the high health and economic costs of ongoing tobacco use. Meanwhile, in middle- and low-income countries, access can be much more limited due to lack of availability, high cost, insufficient health insurance coverage, and competing public health priorities.

It is important for policymakers and clinicians to be aware of the recent efforts of the tobacco industry to co-opt cessation pharmaceutical treatment by promoting switching from cigarettes and smokeless tobacco to their e-cigarettes, heated tobacco products, and oral nicotine pouches as a preferred method of cessation (see section 5.3.1).

Essential Medicine Status

One international driver that can help improve access to cessation medications is WHO's inclusion of nicotine replacement therapy and bupropion on its Model List of Essential Medicines. This designation signals the global importance of making these products affordable and accessible. It also encourages governments and NGOs to invest in distribution and coverage as a cost-effective way to reduce the burden of tobacco-related disease. However, despite this endorsement, major barriers persist. Some countries lack robust health care financing or national quitline infrastructure, making it difficult for individuals to get comprehensive cessation support, including medications. In others, limited awareness and training among health care providers, or cultural attitudes toward smoking and medication use, can further restrict effective uptake of medications. By contrast, in places that have strong tobacco control policies—such as high taxes on cigarettes, well-funded public health campaigns, and integrated cessation support—cessation pharmacotherapies are more likely to be promoted, subsidized and used in combination with counseling, thus improving success rates overall.

Annex 5: Smoking Cessation Clinics

History

Specialized clinics focusing on provision of tobacco dependence treatment for heavily addicted tobacco users have played a role in demonstrating the potential for intensive, evidence-based cessation support. In high-income countries, one of the earliest examples is the Mayo Clinic's Tobacco Treatment Program in the United States,[62] which began operating in 1988, pioneering the use of multidisciplinary teams and comprehensive treatment protocols. This approach can include behavioral counseling, nicotine replacement therapy and prescription medications (often combined), delivered in structured formats such as one-on-one sessions, group therapy, and follow-up visits. Over time, similar specialized clinics were established in other high-income contexts (including in South Korea, with unusually large numbers of patients being seen)[63] where dedicated professionals, including psychologists, physicians, nurses and pharmacists, collaborated to offer intensive cessation services.

Recognizing the global burden of tobacco use, several low- and middle-income countries also set up smoking cessation clinics to provide more comprehensive care. Turkey,[64] for example, prioritized the creation of government-sponsored clinics offering counseling and free medications to drive down smoking rates. India[65] has experimented with tobacco cessation centers, often situated within government hospitals. In China, specialized clinics operate in many major urban hospitals. In many countries with specialized clinics capacity, access and public awareness vary, and challenges remain. For example, some cessation clinics are only staffed for a half-day a week.

Limitations: The overall number of patients seeking help in specialty clinics is generally low compared to the total population of tobacco users, and far lower than the potential number of patients receiving brief advice in general clinic settings. While intensive clinics may achieve impressive quit rates for individuals who attend, their reach alone is usually insufficient to measurably reduce tobacco use prevalence on a population level. In addition, the cost per patient for treatment is generally higher than the less-intensive modalities already discussed, and creating and sustaining numerous clinics requires significant attention and support.

Maximizing Benefits: Nevertheless, these clinics have the potential to provide TCE benefit beyond the direct treatment of individual patients seen there. They may function as "centers of excellence," setting standards for best practices that can be adopted more broadly. Clinicians trained in these more intensive settings can transfer their expertise to primary and specialty care physicians, nurses, pharmacists and other providers. The existence of specialty clinics may help normalize providing tobacco use treatment routinely in general clinical environments, and their expertise can help refine guidelines and protocols for less-intensive environments. In this way, their potential impact can extend beyond the smaller group of patients they directly serve.

To ensure these clinics do not distract from or draw resources away from interventions that are less intense but have a much broader reach, stakeholders must exercise caution and not consider specialty cessation clinics as a stand-alone solution. A large majority of tobacco users will continue to quit on their own, motivated by environmental pressures, repeated exposure to brief advice from primary care, cost-effective quitlines and, where available, direct access to cessation medications. Experience in countries and health systems suggests

that widespread specialized clinics are not a necessary component of an effective tobacco cessation treatment ecosystem if the other elements identified by WHO are systematically implemented in health care settings. However, if specialized cessation clinics are developed, they should be structured to complement and reinforce mass-reach interventions rather than replace them. This may include making them easily accessible—located and integrated within primary and specialty care centers and focused on the most dependent or treatment-resistant users. Messaging, training and general clinic flow algorithms should not assume that all tobacco users must be seen in a cessation specialty clinic in order to successfully quit. Finally, specialized cessation clinics should provide leadership and support, disseminating expertise broadly to primary care and specialty clinics and hospitals. This can include participation in training as well as assistance in development and review of guidelines, protocols and health care system cessation metrics.

Annex 6: WHO Guideline Evidence Recommendations

(Including digital cessation intervention details)
(WHO Clinical Treatment Guideline for Tobacco Cessation in Adults)

WHO Tobacco Treatment Guideline findings with strength of recommendation/evidence:

- **Brief advice** (30 seconds to three minutes) delivered in health care setting to all tobacco users: **Strong** recommendation; moderate certainty
- **Counseling/behavioral support** (beyond brief advice) offered to all interested in quitting: **Strong** recommendation
  - In-person: one-on-one; group: high certainty
  - Telephonic delivery (quitline): moderate certainty
- **Digital/mCessation:** Texting, websites, apps, AI-driven chatbots: **Conditional** recommendation: moderate/very low/low/low certainty evidence respectively
  - "Digital tobacco cessation interventions with interactive content and tailored responses based on user replies are more likely to be effective."
  - "Careful content design and ongoing monitoring and evaluation is required to develop and maintain digital tobacco cessation programs."
- **Pharmacotherapy** delivered in both clinical and community settings
  - Varenicline, NRT or bupropion as first-line treatments: **Strong** recommendation; high certainty
  - Combination NRT over monotherapy where NRT is planned: **Strong** recommendation; moderate certainty
  - Cytisine where available/approved: **Strong** rec; moderate certainty
  - Bupropion plus varenicline or NRT where inadequate response to first-line treatments: **Conditional** recommendation; moderate/low certainty
- **Combination behavioral/pharmacotherapy:** Strong recommendation; high certainty
- **Smokeless tobacco interventions**
  - Intensive behavioral support (all modalities): **Strong** recommendation; moderate certainty
  - Varenicline or NRT: **Strong** recommendation; moderate/low certainty
- **Traditional/complementary/alternative therapies**
  - Evidence insufficient to make recommendation for or against. If used, offer with behavioral support and/or pharmacotherapy

Digital interventions are an emerging modality. The WHO Clinical Treatment Guideline review's evidence evaluation and implementation considerations for digital interventions determined the following:

- **Mobile Text Messaging:** Automated text interventions are moderately effective compared to minimal support, especially when combined with other cessation methods. However, their impact may diminish in today's digital environment due to competing

smartphone and social media interactions. Texting programs are cost-effective and widely acceptable, though equity depends on a person's digital access.

- **Internet-Based Interventions:** Evidence suggests internet interventions are not significantly more effective than minimal support for long-term tobacco abstinence. The low certainty of evidence, coupled with small benefits and potential indirect harms (e.g., reliance on less effective methods), limits their standalone use. These interventions are feasible and affordable but should not replace more effective options.
- **Smartphone Apps:** While apps alone show low certainty of effectiveness, interactive apps with robust features are more effective when paired with pharmacotherapy. Apps are cost-effective and acceptable but may yield lower efficacy compared to behavioral interventions. Care must be taken to avoid overreliance on app-based support.
- **Conversational AI:** AI-based interventions show promising benefits, with significantly increased long-term tobacco abstinence rates. They are feasible and cost-effective, with minimal harms. However, using AI as the sole intervention may lead to underutilization of more effective methods.

The WHO guidelines offered the following digital implementation considerations:
Digital tools hold significant potential for broad reach and accessibility in tobacco cessation efforts. They can serve as a standalone service or as an entry point to other recommended cessation interventions. When used as a standalone option, users should be informed about the full range of available interventions, their effectiveness, and how digital tools fit within the broader cessation landscape.

Digital interventions can also complement other cessation methods, enhancing their impact rather than replacing them. However, more evidence is needed to identify specific combinations of interventions that are both effective and efficient. For those exploring additional cessation resources, digital tools can act as a valuable supplement.

The design and implementation of digital cessation tools require careful content development and ongoing monitoring and evaluation. Interventions that offer interactive and tailored responses based on user input are particularly promising, and it is essential to keep pace with the evolution of digital and social media platforms through consistent evaluation.

Digital tools can take various forms, and multiple modalities can be combined to enhance user experience and engagement. For instance, a smartphone app could integrate with a website, include built-in texting features, and leverage AI-driven systems. While different modalities can work together, mobile text messaging currently has the strongest evidence for effectiveness in tobacco cessation interventions.

Overall, digital interventions represent a versatile and evolving component of the tobacco cessation ecosystem, offering opportunities to expand reach, engage users, and complement traditional cessation methods.

Annex 7: Making the Financial Case for Investing in Tobacco Cessations in Low- and Middle-Income

Tobacco use remains a major global health, social and economic burden. It costs low- and middle-income countries (LMICs) an estimated 2% of GDP and more than US$500 per smoker annually through lost productivity, premature deaths, and health care expenditures.[66] These losses are similar to the GDP impact of other major health factors such as cardiovascular disease, TB in high-prevalence countries, and mental health disorders. Thus, tobacco use is an important constraint on economic growth, underscoring the strong fiscal and public health case for investing in cessation as part of a tobacco control plan.

Investing in effective cessation programs reduces disease burden and health care costs while supporting sustainable development.[5,9,67-70] The WHO Global Investment Case for Tobacco Cessation estimates that an investment of US$1.68 per capita over 10 years (2021-2030) in interventions such as toll-free quitlines, brief advice in primary care, and mCessation programs could enable 152 million people to quit successfully.[71]

The WHO Tobacco Cessation Guidelines summarize proven behavioral and pharmacological approaches and provide practical guidance for integrating them into health systems.[9]

Building on this foundation, the framework below outlines key criteria and examples to guide value-based, evidence-informed investment in cessation programs.

Table 1. Key Criteria and Evidence for Value-Based Investing in Tobacco Cessation

Criterion	Evidence and Example
Advances national development and demonstrates economic benefits	Reducing tobacco use lowers premature deaths and productivity losses, building a healthier workforce and fostering stronger growth. Even modest cessation investments help offset the productivity and health care losses caused by tobacco use, yielding clear fiscal and developmental benefits.[66,67,70]
Positions cessation expenditure as an investment, not a cost, that generates savings and economic benefits	WHO estimates a 7:1 return on investment for tobacco control "best buys," showing that well-designed cessation programs deliver sustained financial and health gains by lowering health care spending and financial strain for governments, businesses and families. Reduced disease burden and higher productivity deliver lasting savings and economic gains.[67]
Makes efficient use of existing health-system resources	Proven cessation strategies—such as brief advice, quitlines, mCessation, counseling, and pharmacologic treatments—can be integrated into existing health care systems.[67] Brief advice can be incorporated into primary and specialty care and TB, HIV, mental health and NCD programs with modest investment; quitlines can leverage existing hotline infrastructure, and mCessation can use established digital platforms such as WeChat.[20,23,24,72]
Prioritizes results-focused and evidence-based resource allocation	Evidence-based interventions increase quit rates by 2% to 15% compared with no intervention, showing measurable, cost-effective outcomes. Emerging LMIC evidence confirms that these strategies are feasible, adaptable and effective in diverse settings.[67,70,73]

Supports progress across health, economic and environmental goals	Reducing tobacco use decreases household poverty and improves social, educational and economic well-being beyond the health sector. It also protects the environment by reducing deforestation, pollution and resource depletion linked to tobacco production.[70,74,75]
Requires relatively modest absolute investment amounts	Costs to develop and deliver cessation services are modest relative to costs to treat tobacco-related diseases. Utilization of more expensive elements such as pharmacotherapy and counseling remains modest even when most or all of the cost is paid by insurers or the government.[71]

Adapted from How can health ministries present persuasive investment plans for women's, children's and adolescents' health?

Successfully Obtaining Funding for Tobacco Cessation Treatment

- Identify how to frame the investment case, including evidence and program characteristics that increase key decision-makers' support.
- Identify barriers to funding that decision-makers care about and be prepared to address these directly in making the case.
- Look for ways to integrate cessation funding into existing health care and public health funding mechanisms such as health and social insurance for stability.
- Economic benefit arguments can be an important part of the case for investing in cessation but often are not the only deciding factor.

It is critical to focus on the actual factors that are of greater importance to decision-makers, rather than focusing on the factors that advocates believe should influence decision-makers. For example, certain arguments may be more effective with decision-makers who have long-term responsibilities for improving the effectiveness of health care but be ineffective with individuals having more immediate short-term responsibilities. Decision-makers with authority to guide the development of health care systems proactively may find long-term return-on-investment arguments compelling, but others responsible for managing a shrinking health care budget may be laser-focused on the short-term absolute costs of any new program. In addition, noneconomic arguments may resonate with ministry of health officials, such as emphasizing the importance of making tobacco treatment a core element of health care because of its dramatic beneficial impact on risk of death and on disease progression.

Ecosystem Implications

Though modest relative to other health care expenditures, investments to help tobacco users quit reinforce the importance and benefit of other public policies proven to decrease tobacco use. Policies outlined in the WHO FCTC, such as preventing second-hand smoke exposure, Increasing price, banning tobacco industry advertising and marketing, restricting retail tobacco product sales, and countering industry advertising, all work to decrease tobacco use and support tobacco users in successfully quitting.[51]

Resource

Assessment of the Economic Costs of Smoking, WHO Economics Toolkit, 2011

This toolkit guides research efforts to estimate the economic costs of tobacco, including mortality, morbidity, and health care expenditures, using cost-of-illness methods. It offers step-by-step approaches and alternative techniques suited to countries with varying data availability.

Case Studies

The following case studies show how countries at different income levels have developed and financed tobacco cessation programs within their health systems. They illustrate how implementation costs can be modest relative to the economic burden of tobacco use and the costs associated with chronic disease treatment. Once established, programs can be delivered sustainably at low ongoing cost. Examples include low-cost models in India and Vietnam and a large-scale sustained system in the United States.

Case Study 1:
Cost of Developing and Delivering a Tobacco Cessation Intervention—India[76]

Program focus: A tobacco cessation intervention package was implemented in two district-level noncommunicable disease (NCD) clinics in Punjab, India, serving populations of approximately 995,000 and 600,000. The study separately assessed the cost of developing, implementing (training) and then delivering cessation services within the national health system.

What the cost analysis measured: The study measured program development, provider training, and per-participant delivery costs among clinic patients with NCDs who used tobacco and were followed for 12 months. Development costs reflected actual expenditures, and all relevant health system expenses were included. Delivery costs included opportunity costs, accounting for the value of time and facilities that could have been used for other activities.

Table 2. Development and setup costs—India (district NCD clinics)

Category	Amount (US$)	Description
Program development	$8,874	One-time cost for creating materials, stakeholder meetings, advocacy
Training of human resources	$1,810	Includes training for health care providers (time, logistics, allowances, food and refreshments)
Subtotal: Development and training	**$10,684**	**Combined total setup and preparation costs**

The cost-effectiveness of the nonrecurring upfront development costs for the structured cessation package implemented in two NCD clinics would improve during dissemination, as would training cost-effectiveness during maintenance as more services would be delivered without additional costs.

Delivery: Costs averaged $3.67 per person, covering staff time, phone follow-up, and clinic use (excluding development and training) and including opportunity costs for time and facilities.

Key takeaway: Low one-time non-recurring development costs and modest delivery costs demonstrate strong economic value and potential for integration into national NCD programs.[76]

Case Study 2:
Cost of Delivering Standard and Enhanced Intervention for Smoking Cessation Support —Vietnam[77]

Program focus: A smoking cessation intervention was implemented in 26 commune health centers in a two-arm cluster randomized trial in Thai Nguyen Province, Vietnam, to assess the cost and value of integrating cessation support into primary health care. Two models were compared: the standard 4As model (Ask, Advise, Assess, Assist) delivered during routine health care visits, and an enhanced 4As + R model that added proactive referral and home-based follow-up by village health workers. Community-based service delivery in Vietnam is considered an effective method to approach and support smokers.

What the cost analysis measured: Program development, training and per-smoker delivery costs for both models. Quit rates from previous analysis are reported, but ability to do cost-effectiveness analysis was limited due to lack of information on natural background quit rate without intervention.

Cost findings: The study reported on costs to sustain service (excluding research, general training, and logistics/administration) as follows:

4As model—$6 per smoker for clinic-based counseling

4As + R model—$15 per smoker, including proactive referral and home visits. Key cost drivers included staff time, supervision and outreach.

An earlier study reported six-month abstinence rates of 10.5% for the 4As model and 25.7% for the 4As and R model. Costs for research are also reported, as well as for the implementation phase ($112,288 total for 26 clinics) with references to earlier study methods and findings.

Key takeaway: Both models used modest resources relative to the economic burden of smoking, demonstrating that health center interventions and an enhanced model adding home-based village health worker follow-up can be feasibly scaled within Vietnam's primary health care system. The authors also suggested that "the investment on interventions at 4As + R model were worth the money more than it was in the model 4As."

Case Study 3:
Operating Costs of National Quitline Services—United States

Program focus: The United States quitline network demonstrates how sustained investment supports nationwide access to free cessation services. Quitlines operate across all 50 states and U.S. territories, offering counseling by trained specialists, telephone and web-based support, text messaging and sometimes free NRT in many states.[78]

About 1% of U.S. smokers (~250,000 people) use quitline services annually, with six-month quit rates between 23% and 44%.[79]

What the cost analysis measured: National and state-level operating costs, per-smoker expenditures, and service utilization patterns.

Development and system setup costs: Initial national investments established centralized technology, staffing and outreach systems.

Delivery: Each state manages its own program, funded through a mix of federal, state and public or private insurance sources, resulting in some variation in the level of services and spending from state to state and over time, depending on funding availability. However, minimum standards for services and call center metrics were in place.[78]

In 2024, the average cost to deliver quitline services was $2.72 per smoker, calculated by dividing total national expenditure by the total number of adult smokers. Costs ranged from $0.41 to $22.08 per smoker across states, reflecting differences in funding and service intensity.[79]

Average direct service and medication costs were approximately $670,000 per state per year, with additional expenditures for evaluation, promotion and outreach.[79]

Additional Funding: From 2010-2025, a national anti-tobacco media campaign included a centralized quitline number connecting callers to their state services. These educational and promotional activities were funded separately from ongoing quitline operational costs.[80] The evaluation of U.S. quitlines was supported by the CDC and other organizations.

Key takeaway: Established national infrastructure supported continuous service delivery at relatively low ongoing cost per smoker. Sustained, diversified funding supported equitable, reliable access and long-term efficiency.

Case Studies Summary

Developing cessation programs requires a primary investment, with ongoing delivery costs relatively low compared to most health care services. Stable funding helps sustain programs over time, making them feasible within existing health budgets. Long-term sustainability also benefits from continued funding for promotion, evaluation and outreach to maintain program reach and effectiveness. Effective low-cost cessation programs can reduce health and economic losses from tobacco while strengthening health systems and contributing to national development.

Annex 8: Insurance Strategies to Support National Cessation Programs

Insurance coverage for tobacco cessation benefits individuals, strengthens health systems and reduces tobacco-related economic burdens. These gains are particularly important in LMICs, where tobacco-related harms are high and cost barriers limit access to treatment. Comprehensive coverage reduces out-of-pocket costs and can increase quit attempts, treatment use and quit rates.[9]

Comprehensive coverage includes counseling and evidence-based medications, minimizes administrative barriers, and is paired with clear communication and promotion so both tobacco users and providers know what services are available and how to access them.[7,9,81] Evidence from a major public insurance program demonstrated that providing and actively promoting a no-cost cessation treatment benefit significantly increased service use and quit success, creating a population-level impact.[81]

Health insurance is only one financing pathway for health care delivery in many LMICs. Countries may rely on community-based programs, government clinics, tobacco-tax funded cessation services, and digital services that operate outside of insurance entirely. Frequently health services are financed through a mix of public health budgets, social protection programs, out-of-pocket payments and donor-supported programs.[9]

> **WHO Clinical Guideline:** "Countries vary widely in how health-care treatments are financed. Removing cost barriers is essential to increase the use of tobacco cessation services. Where health insurance exists, insurers may consider full-cost coverage for counseling and cessation medications without pre-authorization. Where insurance is limited, countries may use mechanisms such as tobacco tax revenues, public health programs, or community-based delivery systems to eliminate financial and access barriers."[9]

The following sections outline considerations for designing, financing and promoting comprehensive cessation coverage and summarize feasible approaches to expanding access through insurance and noninsurance mechanisms.[9]

Key Principle for Reducing Cost Barriers
Treating tobacco dependence similarly to other high-value preventive services and chronic condition management can strengthen the rationale for sustained investment.[7,9]

Conditions That Make Cost Support Effective
WHO guidance emphasizes several factors that increase the effectiveness of cost support for cessation services and help ensure people can readily use them:[81,82]

- Provide counseling and medications at no cost.
- Make them available at routine points of care.
- Minimize preauthorization or other administrative requirements.
- Communicate availability repeatedly to providers and patients.
- Reduce nonfinancial barriers (e.g., keep medications stocked; provide toll-free quitlines or mCessation platforms) so quitting tools and services are easy to obtain.

WHO Article 14 Guidelines "Where appropriate, ensure that health insurance or other funded health care systems record tobacco dependence as a disease or disorder and include its treatment in services covered."[7]

What Comprehensive Coverage Looks Like

What countries should include in their benefit package design

A comprehensive benefit includes practical elements that make treatment easy to access and use. LMICs may prioritize low-cost counseling and NRT. Country examples such as France, Panama, Mexico and Uruguay illustrate different approaches to financing.[81,83]

Core Components of Comprehensive Coverage

- Routine screening and brief advice
- Coverage for individual, group and phone counseling
- Coverage for evidence-based medications (Rx and OTC)
- No cost-sharing (copays, deductibles)
- Easy medication access (pharmacies, primary care)
- Monitoring service use
- Promote with active communication to providers and tobacco users

Case study—France: public financing and infrastructure

France offers a useful example of comprehensive national coverage.[83]

National insurance covers most cessation medications, with full coverage for low-income groups; private insurers reimburse remaining costs. NRT is dispensed directly through pharmacies, without administrative barriers. Coverage is paired with national communication campaigns to raise awareness among smokers and providers. This combination—broad access, minimal barriers, service integration and active promotion—illustrates a comprehensive benefit aligned with WHO guidance.

Policy Approaches Informed by the France Model

- Use tobacco tax revenue to finance cessation services.
- Include cessation medicines on the essential medicines list.
- Make evidence-based medications available at low or no cost.
- Allow pharmacies to dispense NRT easily with reimbursement afterward.
- Expand prescribing authority to nurses and community health workers.
- Pair coverage with national communication efforts.

Financing Mechanisms Relevant for LMICs

Financing tobacco cessation services requires taking approaches that reflect diverse health care systems, including those in which many people lack insurance, and coverage for cessation is limited.

Insurance can fund counseling and medications where it exists, but most LMICs also rely on a mix of noninsurance mechanisms.

- Government clinics offering counseling and medications as part of PHC services
- Community health workers (e.g., ASHAs in India) providing brief advice and follow-up
- mCessation programs funded by public health budgets
- Donor-supported or NGO-supported cessation services
- Tobacco tax revenue used to fund quitlines or medication procurement

Brief Country Examples From Latin America[83]

Uruguay: National health fund pays providers and uses performance incentives tied to cessation (see full Case Example: Uruguay).

Panama: The Ministry of Health (MINSA) is the central institution responsible for coordinating public tobacco control policies in Panama, including cessation services and the provision of medications. Panama has a network of smoking cessation clinics distributed throughout various regions. The country has adopted a scheme of allocating a portion of tobacco tax revenues to finance tobacco control policies, including cessation and treatment.

Chile: Recently, Chile included smoking cessation and treatment within its health strategy called Explicit Health Guarantees (GES). This includes behavioral and pharmacological interventions. This guarantees the right to receive treatment, but coverage is not total; part of the cost is covered by the health system, and the remainder is covered by moderate co-payments from the user.

Costa Rica: 55% of tobacco tax revenue is allocated to the Costa Rican Social Security System for prevention, diagnosis and treatment (including cessation treatments and strengthening related services). See full **Case Example: Costa Rica**

Common Benefit-Design Pitfalls
Why coverage may fail even when it exists

Low utilization of clinical cessation interventions is often driven by inadequate insurance coverage and confusing, inconsistent benefit design. Even when treatment is covered, copayments, prior authorization requirements, and variable benefit structures make services difficult for smokers and clinicians to use.[81]

Key pitfalls include:[81]

- Eligibility restrictions
- Copays or caps
- Pre-authorization requirements
- Only covering meds or only covering counseling
- Short coverage windows
- Supply interruptions
- Restrictive service delivery systems
- High design variability between different insurers in countries with multiple insurers

Promoting Coverage and Driving Utilization[81,82]

Awareness is fundamental: Even the strongest benefit design will have limited impact if tobacco users and their clinicians do not know what services are covered or how to access them. Effective promotion ensures that coverage is both understood and used.

Maximizing the benefit of coverage requires coordinated communication efforts. Clinicians across specialties, public health agencies, insurers and health care organizations all play important roles in informing people who use tobacco about available cessation benefits and how to access them.

Promotion works best when it combines provider outreach with clear, public-facing messages. Strategies such as clinician reminders, community communication, radio and transit ads, SMS outreach and mailed materials can increase treatment use and normalize quitting, often prompting quit attempts even among those not actively seeking support. Monitoring uptake and equity helps promotion efforts reach all populations and enables benefits be used as intended. In countries with multiple insurance and payment mechanisms, a national health ministry may decrease confusion by mandating a base level of insurance with the characteristics described in this annex that all insurers and health systems must provide (this approach was used in the 2010 Affordable Care Act in the United States).

Promotion Example: Massachusetts Medicaid[81]

Targeted promotion was central to the success of the 2006 Massachusetts Medicaid cessation benefit. Outreach to clinicians and public-facing messages (radio, transit and mailed materials) sharply increased awareness and use. Within three years:

- **37%** of Medicaid-insured smokers had used the benefit
- Smoking prevalence among enrollees fell from **38%** to **28%**
- Hospitalizations for myocardial infarction dropped by nearly **50%**
- The program generated **$3.12** in medical savings for every dollar spent

Promotional campaigns also increased quit attempts among smokers who did not use treatment, helping normalize quitting and signaling that support was available.

Conclusion

Comprehensive financing—through insurance or other mechanisms—can substantially increase cessation treatment use and quit rates. WHO guidance provides a foundation that countries can adapt to their financing systems. Successful implementation requires removing cost barriers, strengthening benefit design, and ensuring strong promotion so that cessation services are widely used.

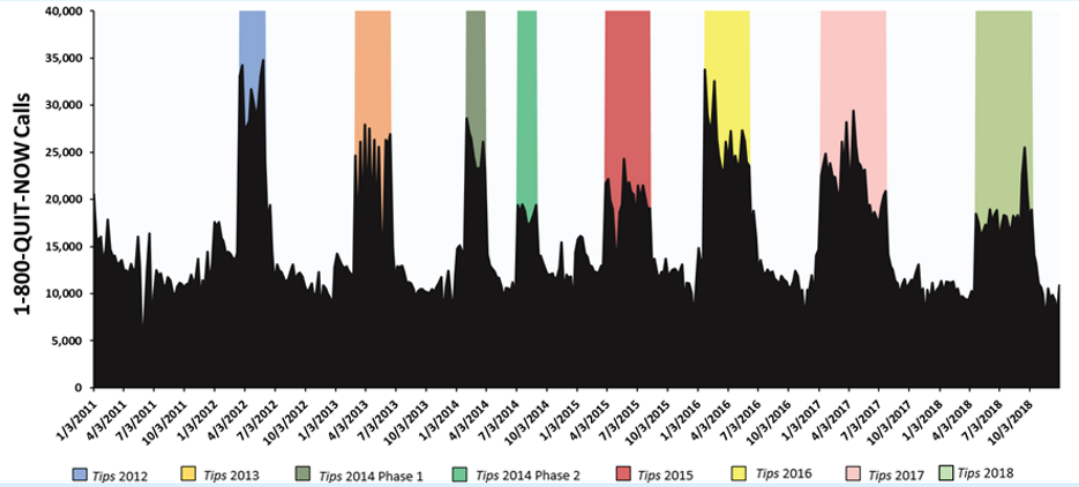
Policy Design Checklist [35,81,82]

- ☐ National coverage of brief advice + counseling + medications
- ☐ Low/no patient copay
- ☐ Repeat treatment cycles allowed
- ☐ Integration across care settings
- ☐ Financing and infrastructure for quitlines/mCessation
- ☐ Trained provider network
- ☐ Reliable medication supply chain
- ☐ Data collection on use and outcomes
- ☐ Communication strategy to raise awareness

Annex 9: Case Examples[80,84]

Impact Case Example: An example of the interaction of reach, effectiveness and the importance of considering comprehensive pathways to quitting involves interactions between media campaigns and quitline services. In the United States, the CDC's mass media campaign Tips from Former Smokers was able to track the impact of tagging ads with the quitline number on call volumes. In general, call volumes doubled during the campaign. This was tracked simply by monitoring the number of calls to the centralized 1-800 number over time and comparing call numbers to the size of the media buy. Prior follow-up of quitline callers and randomized trial data suggested that calling the quitline could result in roughly a 15% absolute increase in quit success (which varied depending upon services received). Thus:

From 2012-2018 the Tips campaign generated about 1 million additional calls to the quitline[80]



- Reach = 1 million calls to quitline
- Effectiveness = 15% absolute increase
- Impact = 150,000 long-term quits

However, a media campaign also impacts other pathways to quitting, including increasing the overall rate of quit attempts (most occurring without formal assistance). During the same time period, a nationally representative cohort of 10,000 smokers was followed, and their quit attempts and smoking status were assessed over the period of the campaign (which was on-air intermittently). Based on tracking the population sample, from 2012 to 2018 more than 16 million people who were exposed to the Tips campaign made a quit attempt associated with the airing of the campaign. Of these, 6.25% were estimated to have quit long-term.

- Reach = 16 million quit attempts
- Effectiveness = 1/16 = 6.25% absolute increase in long-term quits
- Impact = 1 million long-term quits
  - (150,000 or 15% attributable to calling quitline)

Ecosystem Perspective Learnings: If the campaign evaluation had focused solely on the campaign's impact on quitline utilization and the quit rates of those calling, important information would have been missed about the comprehensive pathways to quitting for those exposed to the campaign (85% of tobacco users reported seeing ads). Even though the effectiveness of campaign exposure alone was lower than the effectiveness of the quitline at generating quit success for individuals, the population impact of the campaign was greater, likely because it created a quitting effect without requiring those viewing the ads to proactively call and register for help. One benefit of evaluating the comprehensive impact was that policymakers could appreciate the large impact associated with viewing of the media campaign.

Case Example:

U.S. Brief Advice Progress in Context of Cessation Ecosystem: From 22% Recalling Ever Receiving BA in 1970, to 67% in Past Year in 2023

Barriers to Rapid Adoption, Integration and Maintenance of Brief Advice

- Workload pressures; fear of overwhelming visits
- No reimbursement mechanisms or accountability
- Tobacco industry messaging that framed smoking as a nonmedical individual-choice habit
- Insurer resistance due to short-term-cost focus and enrollee churn
- Limited access to counseling, medications and follow-up for those motivated to quit
- Health care systems that "relapsed" after implementation due to lack of system support
- Public health concerns that cessation work would siphon funds from policy efforts

Coverage of Cessation Services and Brief Advice Integration History

- U.S. health insurance is mixed public (36%) and private employer-based (66%).
- 8% to 10% of population is uninsured (was 18% in 2010).
- Until the 1990s, cessation treatments were almost entirely uncovered.
- Lack of coverage and the high prevalence of smoking spurred creation of low-cost supports such as brief advice and quitlines.
- Health care systems and staff showed little interest without reimbursement.

Quitline Development

- Emerged in the 1980s and '90s because smokers weren't using in-person programs.
- Studies and protocols supported behavioral guidance and medication support.
- 1990-2010: National/state partnerships, with each state responsible for funding and providing services; centralized routing through national portal (1-800-QUIT-NOW).
- By 2010, any caller anywhere in the U.S. received consistent evidence-based services.
- CDC grants and state/service provider consortiums improved quality and coordination.
- Tips media campaign (2010 onward) reliably doubled call volumes.

What Helped Gradually Increase Routine Brief Advice Adoption

- Strong research evidence and implementation science
- Policy changes mandating coverage (Medicare/Medicaid; Affordable Care Act for private)
- Support from medical and civil society groups
- Infrastructure: quitlines, media campaigns, denormalization
- Funding from NGOs, CDC, tobacco tax revenue, Master Settlement Agreement with tobacco industry

Key Lessons

- Persistence yields change.
- Implementation attention and policy reform are essential; evidence alone is insufficient.
- Return on investment arguments have limits; cessation was held to overly high standards.
- Integration into health care is crucial.
- Cessation support must complement—not compete with—policy work.
- Use strategic leverage points for efficient system change.
- Increase supply, awareness and ease of access; demand is not the main barrier.

Bibliography

1. WHO Global Report on Trends in Prevalence of Tobacco Use 2000–2030. WHO; 2024. https://iris.who.int/bitstream/handle/10665/375711/9789240088283-eng.pdf?sequence=1
2. Tobacco. World Health Organization. https://www.who.int/health-topics/tobacco#tab=tab_1
3. Novotny TE, Bialous SA, Burt L, et al. The environmental and health impacts of tobacco agriculture, cigarette manufacture and consumption. Bull World Health Organ. 2015;93(12):877-880. doi:10.2471/BLT.15.152744
4. Goodchild M, Nargis N, Tursan d'Espaignet E. Global economic cost of smoking-attributable diseases. Tob Control. 2018;27(1):58. doi:10.1136/tobaccocontrol-2016-053305
5. WHO Technical Manual on Tobacco Tax Policy and Administration. 1st ed. World Health Organization; 2021.
6. WHO Report on the Global Tobacco Epidemic 2021: Addressing New and Emerging Products. 1st ed. World Health Organization; 2021.
7. WHO Framework Convention on Tobacco Control: Guidelines for Implementation Article 5.3; Article 8; Articles 9 and 10; Article 11; Article 12; Article 13; Article 14 –2013 Edition. WHO. https://fctc.who.int/resources/publications/m/item/guidelines-for-implementation-of-article-14
8. WHO Report on the Global Tobacco Epidemic, 2025. WHO. https://www.who.int/initiatives/mpower
9. World Health Organization. WHO Clinical Treatment Guideline for Tobacco Cessation in Adults. World Health Organization; 2024.
10. World Health Organization, WHO Framework Convention on Tobacco Control. WHO Framework Convention on Tobacco Control: Guidelines for implementationArticle 5.3; Article 8; Articles 9 and 10; Article 11; Article 12; Article 13; Article 14. 2013 edition. World Health Organization; 2013. Accessed August 14, 2025. https://iris.who.int/handle/10665/80510
11. Smoking Cessation. A Report of the Surgeon General. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; 2020. https://www.hhs.gov/sites/default/files/2020-cessation-sgr-full-report.pdf
12. Davis KC, Murphy-Hoefer R, Levine B, King BA, Hu S, Rodes R. Evidence of the Impact of the Tips From Former Smokers Campaign: Results From the Behavioral Risk Factor Surveillance System. Prev Chronic Dis. 2019;16:190110. doi:10.5888/pcd16.190110
13. Fu D, Xiao L. The Progress of the Global Tobacco Cessation Strategies. China CDC Wkly. 2023;5(21):475-478. doi:10.46234/ccdcw2023.090

14. Moore JF. Predators and prey: a new ecology of competition. Harv Bus Rev. 1993;71(3):75-86.

15. Begon M, Townsend CR, Harper JL. Ecology: From Individuals to Ecosystems. 4th ed. Blackwell Pub; 2006.

16. West R. The Multiple Facets of Cigarette Addiction and What They Mean for Encouraging and Helping Smokers to Stop. COPD: Journal of Chronic Obstructive Pulmonary Disease. 2009;6(4):277-283. doi:10.1080/15412550903049181

17. Carson KV, Verbiest MEA, Crone MR, et al. Training health professionals in smoking cessation. Cochrane Database Syst Rev. 2012;2012(5):CD000214. doi:10.1002/14651858.CD000214.pub2

18. Aveyard P, Begh R, Parsons A, West R. Brief opportunistic smoking cessation interventions: a systematic review and meta-analysis to compare advice to quit and offer of assistance. Addiction. 2012;107(6):1066-1073. doi:10.1111/j.1360-0443.2011.03770.x

19. Stead LF, Buitrago D, Preciado N, Sanchez G, Hartmann-Boyce J, Lancaster T. Physician advice for smoking cessation. Cochrane Database Syst Rev. 2013;2013(5):CD000165. doi:10.1002/14651858.CD000165.pub4

20. Cheung YTD, Jiang N, Jiang CQ, et al. Physicians' very brief (30-sec) intervention for smoking cessation on 13 671 smokers in China: a pragmatic randomized controlled trial. Addiction. 2021;116(5):1172-1185. doi:10.1111/add.15262

21. Shuter J, Goel S, Himelhoch SS. Integration of Tobacco-Cessation Interventions into Tuberculosis and HIV Care. N Engl J Med. 2025;393(20):1969-1972. doi:10.1056/NEJMp2500490

22. Bam TS, Aditama TY, Chiang CY, Rubaeah R, Suhaemi A. Smoking cessation and smokefree environments for tuberculosis patients in Indonesia-a cohort study. BMC Public Health. 2015;15(1):604. doi:10.1186/s12889-015-1972-2

23. Himelhoch SS, Koech E, Omanya AA, et al. Efficacy of Smoking Cessation Interventions among People with HIV in Kenya. NEJM Evidence. 2024;3(11). doi:10.1056/EVIDoa2400090

24. Gupte HA, Zachariah R, Sagili KD, et al. Integration of tobacco cessation and tuberculosis management by NGOs in urban India: a mixed-methods study. public health action. 2018;8(2):50-58. doi:10.5588/pha.17.0085

25. Saba M, Diep J, Bittoun R, Saini B. Provision of smoking cessation services in Australian community pharmacies: a simulated patient study. Int J Clin Pharm. 2014;36(3):604-614. doi:10.1007/s11096-014-9944-7

26. Holliday R, Hong B, McColl E, Livingstone-Banks J, Preshaw PM. Interventions for tobacco cessation delivered by dental professionals. Cochrane Database Syst Rev. 2021;2(2):CD005084. doi:10.1002/14651858.CD005084.pub4

27. Mullen KA, Manuel DG, Hawken SJ, et al. Effectiveness of a hospital-initiated smoking cessation programme: 2-year health and healthcare outcomes. Tob Control. 2017;26(3):293. doi:10.1136/tobaccocontrol-2015-052728

28. Rigotti NA, Clair C, Munafò MR, Stead LF. Interventions for smoking cessation in hospitalised patients. Cochrane Database Syst Rev. 2012;5(5):CD001837. doi:10.1002/14651858.CD001837.pub3

29. Papadakis S, Girvalaki C, Vardavas C, et al. Factors associated with rates of tobacco treatment delivery by General Practitioners in Greece: Missed opportunities for prevention? Tob Induc Dis. 2018;16:21. doi:10.18332/tid/90822

30. Curti D, Bianco, E. Assessment of Medical Intervention in the Intention to Quit Tobacco in Uruguay, Argentina y Brazil: Tobacco Control Policy Effects. Journal of Family Medicine. 2016;3(3-2015).

31. Tobacco Free Initiative; Smoking Cessation. World Health Organization. https://www.emro.who.int/tfi/publications/smoking-cessation.html

32. Training for tobacco quit line counsellors: telephone counselling. World Health Organization. https://www.who.int/publications/i/item/training-for-tobacco-quit-line-counsellors-telephone-counselling

33. Strengthening health systems for treating tobacco dependence in primary care. World Health Organization. https://www.who.int/publications/i/item/strengthening-health-systems-for-treating-tobacco-dependence-in-primary-care

34. S.A.R.A.H, a Smart AI Resource Assistant for Health. World Health Organization. https://www.who.int/campaigns/s-a-r-a-h

35. Guidelines for Implementation of Article 14. WHP. https://fctc.who.int/resources/publications/m/item/guidelines-for-implementation-of-article-14

36. VanFrank B, Malarcher A, Cornelius ME, Schecter A, Jamal A, Tynan M. Adult Smoking Cessation — United States, 2022. MMWR Morb Mortal Wkly Rep. 2024;73(29):633-641. doi:10.15585/mmwr.mm7329a1

37. Promising Practices for Pharmacist Engagement in Tobacco Cessation Interventions. Ameerican Pharmacists Association; 2020. https://aphanet.pharmacist.com/sites/default/files/audience/APhAPromisingPracticesTobCess_web_2020.pdf

38. State of Tobacco Control 2025. American Lung Association. https://www.lung.org/research/sotc

39. Proctor R. Golden Holocaust: Origins of the Cigarette Catastrophe and the Case for Abolition. University of California Press; 2011.

40. National Cancer Institute. The Role of the Media in Promoting and Reducing Tobacco Use. Tobacco Control Monograph No. 19. : U.S. Department of Health and Human Services, National Institutes of Health, National Cancer Institute.; 2008. https://cancercontrol.cancer.gov/sites/default/files/2020-08/m19_complete.pdf

41. Lee JGL, Kong AY, Sewell KB, et al. Associations of tobacco retailer density and proximity with adult tobacco use behaviours and health outcomes: a meta-analysis. Tob Control. 2022;31(e2):e189. doi:10.1136/tobaccocontrol-2021-056717

42. Odani S, Tabuchi T. Tobacco usage in the home: a cross-sectional analysis of heated tobacco product (HTP) use and combustible tobacco smoking in Japan, 2023. Environ Health Prev Med. 2024;29(0):11-11. doi:10.1265/ehpm.23-00292

43. Public Health Agency of Sweden. Use of Tobacco and Nicotine Products. The Public Health Agency of Sweden. Accessed October 13, 2025. https://www.folkhalsomyndigheten.se/the-public-health-agency-of-sweden/living-conditions-and-lifestyle/andtg/tobacco/use-of-tobacco-and-nicotine-products/

44. General Assembly, United Nations. Right of Everyone to the Enjoyment of the Highest Attainable Standard of Physical and Mental Health, Harm Reduction for Sustainable Peace and Development. UN General Assembly; 2025. https://docs.un.org/en/A/79/177

45. Glantz SA, Oliveira Da Silva AL. Comparison of e-Cigarette and Cigarette Use and Dual Use Associations With Disease: Updated Systematic Review and Meta-Analysis. Public Health Rep. Published online February 17, 2026:00333549251403349. doi:10.1177/00333549251403349

46. Jackler RK, Ling PM. The Tobacco Industry Has No Business Funding Continuing Medical Education. JAMA. 2024;332(24):2059-2060. doi:10.1001/jama.2024.9241

47. Ling PM, Glantz SA. Historical and political context for Philip Morris International's continuing medical education courses on harm reduction. Tob Control. Published online January 3, 2025:tc-2024-059015. doi:10.1136/tc-2024-059015

48. Medscape removes education courses for doctors funded by tobacco giant. BMJ Group.

49. Thombs BD, Traversy G, Reynolds DL, et al. Recommendations on interventions for tobacco smoking cessation in adults in Canada. CMAJ. 2025;197(28):E846-E861. doi:10.1503/cmaj.241584

50. WHO Position on Tobacco Control and Harm Reduction. World Health Organisation. https://cdn.who.int/media/docs/default-source/tobacco-hq/whoposition-nov12.pdf?sfvrsn=dc1f37d3_3&download=true

51. WHO Framework Convention on Tobacco Control, World Health Organization. WHO Framework Convention on Tobacco Control. Published online 2003:36.

52. Glasgow RE, Vogt TM, Boles SM. Evaluating the public health impact of health promotion interventions: the RE-AIM framework. Am J Public Health. 1999;89(9):1322-1327. doi:10.2105/AJPH.89.9.1322

53. Noncommunicable Disease Surveillance, Monitoring and Reporting, Tobacco Surveillance. World Health Organization. https://www.who.int/teams/noncommunicable-diseases/surveillance/systems-tools/tobacco-surveillance

54. World Health Organization. Toolkit for Delivering the 5A's and 5R's Brief Tobacco Interventions in Primary Care. World Health Organization; 2014. Accessed August 16, 2025. https://iris.who.int/handle/10665/112835

55. Clinical Practice Guideline Treating Tobacco Use and Dependence 2008 Update Panel, Liaisons, and Staff. A clinical practice guideline for treating tobacco use and dependence: 2008 update. A U.S. Public Health Service report. Am J Prev Med. 2008;35(2):158-176. doi:10.1016/j.amepre.2008.04.009

56. Elshatarat RA, Yacoub MI, Khraim FM, Saleh ZT, Afaneh TR. Self-efficacy in treating tobacco use: A review article. Proceedings of Singapore Healthcare. 2016;25(4):243-248. doi:10.1177/2010105816667137

57. Miller WR, Rollnick S. Motivational Interviewing: Preparing People for Change. 2. ed. Guilford Press; 2002.

58. Fiore MC, Baker TB. Ten Million Calls and Counting: Progress and Promise of Tobacco Quitlines in the U.S. Am J Prev Med. 2021;60(3 Suppl 2):S103-S106. doi:10.1016/j.amepre.2020.06.021

59. An LC, Schillo BA, Kavanaugh A, Luxenberg MG, Joseph AM, McAfee T. Access to nicotine replacement therapy as part of a statewide tobacco telephone helpline. Am J Health Promot. 2006;20(4):267-271. doi:10.4278/0890-1171-20.4.267

60. An LC, Schillo BA, Kavanaugh AM, et al. Increased reach and effectiveness of a statewide tobacco quitline after the addition of access to free nicotine replacement therapy. Tob Control. 2006;15(4):286-293. doi:10.1136/tc.2005.014555

61. Bush TM, McAfee T, Deprey M, et al. The impact of a free nicotine patch starter kit on quit rates in a state quit line. Nicotine Tob Res. 2008;10(9):1511-1516. doi:10.1080/14622200802323167

62. Hurt RD, Ebbert JO, Hays JT, McFadden DD. Treating tobacco dependence in a medical setting. CA Cancer J Clin. 2009;59(5):314-326. doi:10.3322/caac.20031

63. Oh JK, Lim MK, Yun EH, Shin SH, Park EY, Park EC. Cost and effectiveness of the nationwide government-supported Smoking Cessation Clinics in the Republic of Korea. Tob Control. 2013;22(e1):e73-77. doi:10.1136/tobaccocontrol-2011-050110

64. Pekel Ö, Ergör G, Günay T, et al. Smoking cessation and the effect of nicotine dependence on relapse rate in Izmir, Turkey. Turk J Med Sci. 2015;45(4):895-901. doi:10.3906/sag-1408-55

65. Murthy P, Saddichha S. Tobacco cessation services in India: recent developments and the need for expansion. Indian J Cancer. 2010;47 Suppl 1:69-74. doi:10.4103/0019-509X.63873

66. Mann N, Spencer G, Hutchinson B, et al. Interpreting results, impacts and implications from WHO FCTC tobacco control investment cases in 21 low-income and middle-income countries. Tob Control. 2024;33(Suppl 1):s17-s26. doi:10.1136/tc-2023-058337

67. Hutchinson B, Brispat F, Calderón Pinzón LV, et al. The case for investment in tobacco control: lessons from four countries in the Americas. Revista Panamericana de Salud Pública. 2022;46:1. doi:10.26633/RPSP.2022.174

68. No Tobacco TFI. WHO Report on the Global Tobacco Epidemic, 2025, Warnings About the Dangers of Tobacco. World Health Organization; 2025. https://www.who.int/publications/i/item/9789240112063

69. The Tobacco Atlas, Health Effects. Vital Strategies and Economics for Health at Johns Hopkins University; 2022. It drives chronic diseases such as heart disease, COPD, cancer, and stroke, and leads to years of illness, disability, and lost productivity.

70. U.S. National Cancer Institute and World Health Organization. The Economics of Tobacco and Tobacco Control. National Cancer Institute Tobacco Control Monograph 21. U.S. Department of Health and Human Services, National Institutes of Health, National Cancer Institute; and Geneva, CH: World Health Organization; 2016. https://cancercontrol.cancer.gov/sites/default/files/2020-06/m21_complete.pdf

71. It's Time to Invest in Tobacco Cessation. Methodology and Results Summary. World Health Organization; 2021. https://iris.who.int/server/api/core/bitstreams/90881e75-98db-492c-9dc2-9ec15c45540d/content

72. Tang J, Yang J, Liu Y, et al. Efficacy of WeChat-based online smoking cessation intervention ('WeChat WeQuit') in China: a randomised controlled trial. EClinicalMedicine. 2023;60:102009. doi:10.1016/j.eclinm.2023.102009

73. Shankar A, Parascandola M, Sakthivel P, Kaur J, Saini D, Jayaraj NP. Advancing Tobacco Cessation in LMICs. Current Oncology. 2022;29(12):9117-9124. doi:10.3390/curroncol29120713

74. Do YK, Bautista MA. Tobacco use and household expenditures on food, education, and healthcare in low- and middle-income countries: a multilevel analysis. BMC Public Health. 2015;15(1):1098. doi:10.1186/s12889-015-2423-9

75. The Tobacco Atlas, Tobacco and the Environment. Vital Strategies and Economics for Health at Johns Hopkins University; 2024. https://tobaccoatlas.org/features/tobacco-and-environment/

76. Bhatt G, Goel S, Kiran T, et al. Estimating the Cost of Delivering Tobacco Cessation Intervention Package at Noncommunicable Disease Clinics in Two Districts of North India. Nicotine and Tobacco Research. 2023;25(11):1727-1735. doi:10.1093/ntr/ntad105

77. Quynh Mai V, Van Minh H, Truong Nam N, et al. Cost Analysis of Community-Based Smoking Cessation Services in Vietnam: A Cluster-Randomized Trial. Health Serv Insights. 2021;14:11786329211030932. doi:10.1177/11786329211030932

78. CDC. Quitlines and Other Cessation Support Resources. Smoking and Tobacco Use. January 31, 2025. Accessed November 3, 2025. https://www.cdc.gov/tobacco/hcp/patient-care/quitlines-and-other-resources.html

79. North American Quitline Consortium, Annual Survey 2024. North American Quitline Consortium (NAQC). https://cdn.ymaws.com/www.naquitline.org/resource/resmgr/2024_survey/FY24_Annual_Survey_Slides_Fi.pdf

80. Mann NH, Murphy-Hoefer RL, Davis KC, Von Jaglinsky AS, Rodes RM, Beistle DM. The Long-Term Impact of the Tips From Former Smokers ® Campaign on Calls to

1-800-QUIT-NOW, 2012–2023. Nicotine and Tobacco Research. 2025;27(2):326-332. doi:10.1093/ntr/ntae164

81. McAfee T, Babb S, McNabb S, Fiore MC. Helping Smokers Quit — Opportunities Created by the Affordable Care Act. N Engl J Med. 2015;372(1):5-7. doi:10.1056/NEJMp1411437

82. Center for Disease Control. Coverage for Tobacco Use Treatment. https://archive.cdc.gov/www_cdc_gov/tobacco/quit_smoking/cessation/coverage/index.htm

83. Secretariat of the WHO FCTC and the Protocol. Good Country Practices in the Implementation of WHO FCTC Article 14 and It's Guidelines. 2018. good-country-practices-in-the-implementation-of-article-14. ... WHO Framework Convention on Tobacco Control https://fctc.who.int › docs › meeting-reports › go...

84. Murphy-Hoefer R, Davis KC, King BA, Beistle D, Rodes R, Graffunder C. Association Between the Tips From Former Smokers Campaign and Smoking Cessation Among Adults, United States, 2012–2018. Prev Chronic Dis. 2020;17:200052. doi:10.5888/pcd17.200052

85. Government of Karnataka. Annual Progress Report - Strenghening the Tobacco Cessation Ecosystem in Karnataka (FY 2025-26). 2026. https://nhm.karnataka.gov.in/uploads/TOBACCO%20CESSATION%20ANNUAL%20PROGRESS%20REPORT-FY25-26_1779186982.pdf

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